VEIRA

MASTERING LIMITER

VEIRA Limiter Gold

User Manual

The warm one of the four VEIRA colour limiters: an oversampled tape or tube stage rounds the peaks and gives the music smooth, low-order harmonics, and a clean true-peak brickwall finishes the job. At WARMTH 0 it is a transparent limiter.



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Welcome

Thank you for choosing **VEIRA Limiter Gold**. It is a mastering limiter with warmth built in: you turn GAIN up, an oversampled TAPE or TUBE stage rounds the peaks and adds smooth, low-order harmonics, and a clean true-peak brickwall keeps every peak under the CEILING. It is the warm one of the four VEIRA colour limiters (White, Red, Gold and Blue).

The warmth stage works like analog tape or a tube stage pushed a little: quiet signals pass at their own level, and the louder the music gets, the more the peaks round off and the body gains harmonics. The brickwall behind it then has less to do for the same loudness. Gold takes a dense mix to −6 LUFS integrated with the ceiling held at −1 dBTP and no overs, and its colour is the gentle warmth of tape or tubes, not grit.

What makes it different

- **Tape or tube.** TAPE is symmetric, mostly the 3rd harmonic, with tape's record EQ around it, so loud highs round a little sooner. TUBE is asymmetric: the 2nd harmonic leads, for a fuller, rounder sound.
- **Warmth you dial in.** WARMTH sets how much: at 0 % Gold is a transparent true-peak limiter; at 50 % (the default) a 100 Hz note 3 dB under the ceiling gets about 1 % of harmonics.
- **Weight in the low end.** WEIGHT adds up to +3 dB under about 90 Hz before the warmth, so the bass is fuller and drives the warmth a little more.
- **Nothing aliases.** The warmth runs at eight times the sample rate; the worst fold-back product on high tones driven into the ceiling measures 115 dB down.
- **A true-peak ceiling you can trust.** A −1.0 dBTP ceiling reads −1.05 dBTP on a standard meter, with no overs, and a 10 ms hold keeps the brickwall from rippling bass.
- **Fair comparisons.** MATCH plays the result at the input's loudness, so you hear the colour and the limiting, not just "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.

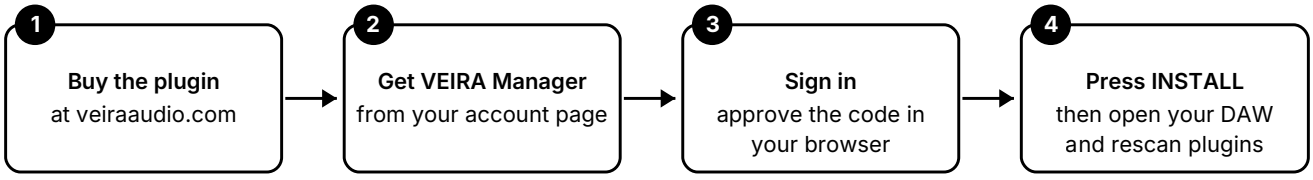
Getting started

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

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 Gold 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.

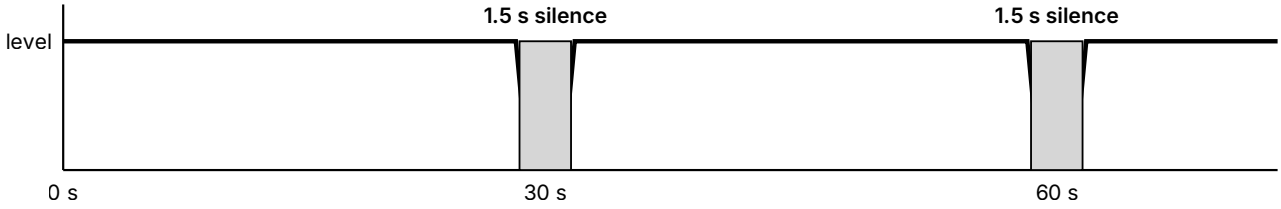


FIGURE 2 What an unlicensed copy does. With a valid licence the audio is never touched.

- **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 Gold. 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 Gold 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



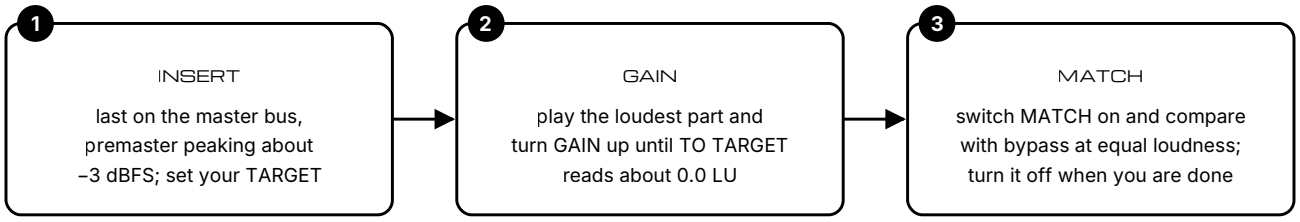
FIGURE 3 VEIRA Limiter Gold, the brushed-champagne unit, with +9.5 dB of GAIN, TAPE and WARMTH at 50 % on a dense premaster: the output (gold, in front) sits under the −1.0 dBTP ceiling, the REDUCTION lane shows what the warmth rounded and what the limiter took, and integrated loudness reads −6.1 LUFS 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	What the warmth rounded off and what the limiter took, over time.
5	LOUDNESS lane	The output's short-term and integrated 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, short-term and momentary loudness, true-peak maximum and PLR.
9	GAIN	How hard the music is pushed into the warmth and the limiter.

	Part	What it does
10	CEILING	The highest the output may go, in true peak.
11	WARMTH	How much tape or tube saturation the music gets.
12	WEIGHT	Low-end weight before the warmth.
13	TAPE / TUBE	The character of the warmth.
14	RELEASE and AUTO	How quickly the brickwall lets go; AUTO adapts it to the music.
15	TARGET	The loudness you are aiming for. It changes nothing in the sound.
16	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 four groups along the bottom, under the captions LEVEL, WARMTH, LIMITER and LOUDNESS.

Quick start: a master at your target in three moves



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

FIGURE 4 The quickest way to a master at your TARGET. *Default* ▸ *Init* is a warm start: GAIN at +0.0 dB, TAPE at 50 % WARMTH, 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:

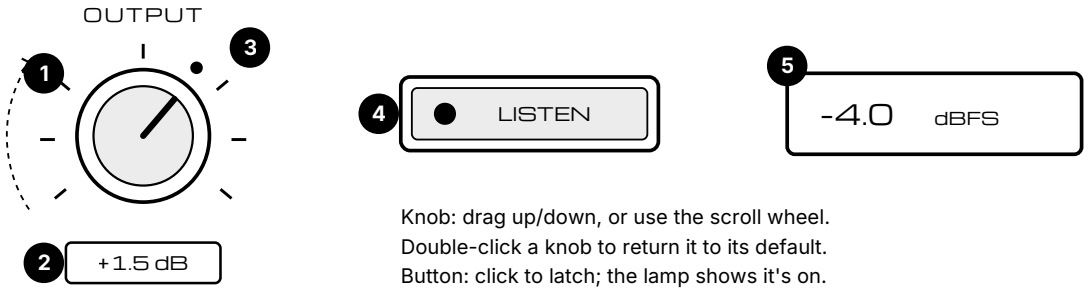


FIGURE 5 The parts you'll find on every VEIRA panel (the labels are examples).

- 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 Gold's panel the parts look a little different from the drawing above:

- **Knobs show their value in the middle** (+9.5 dB, -1.0 dBTP, -6.0 LUFS): the knobs are black, and a ring printed in dark bronze 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:** TAPE or TUBE, AUTO and MATCH fill with dark bronze when they are on, with champagne lettering (in print, a dark button); when they are off they are shallow wells in the paint with bronze lettering. TAPE and TUBE are a pair: one of them is always lit. With WARMTH at 0 % they dim (still readable): the warmth stage is out, so the style makes no difference.
- **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:** Gold is painted a brushed champagne gold, with dark bronze 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 Gold

- **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 Gold 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 *Stems and Buses* folder.

How a limiter works

If you already know limiters, skip to *What happens inside VEIRA Limiter Gold*. 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.

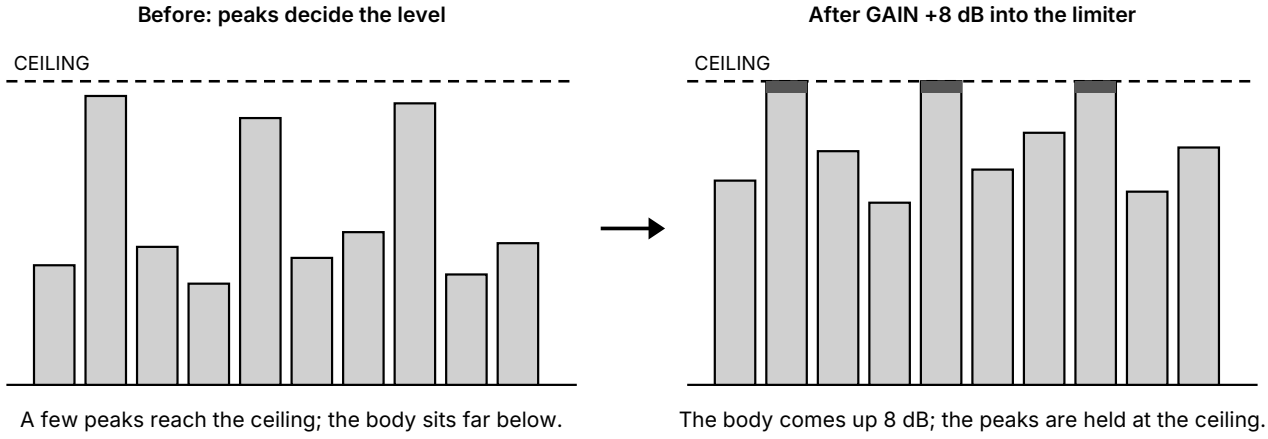


FIGURE 6 A limiter lets you raise the whole song while the peaks stay at the ceiling. The dark caps mark the peaks that were held down.

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.

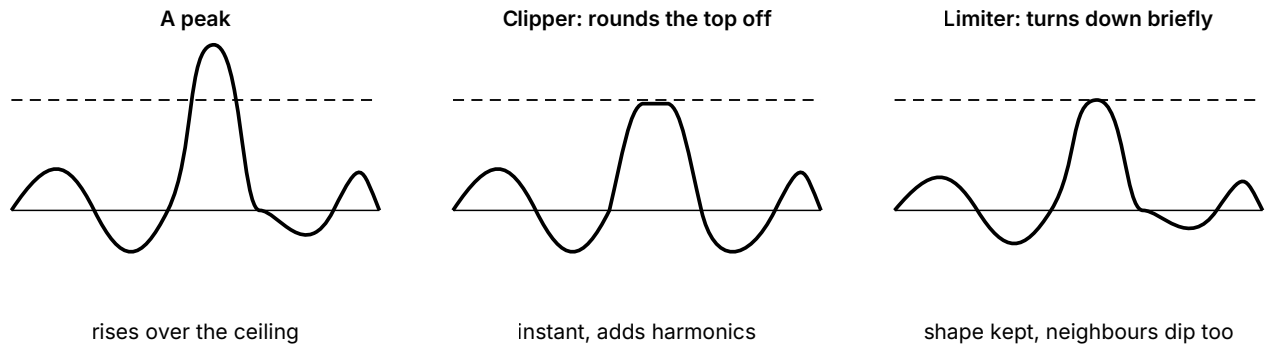


FIGURE 7 The same peak handled two ways. The dashed line is the ceiling. The clipper flattens only the top; the limiter turns the whole moment down, so the notes either side of the peak get a little quieter too.

Every loud master mixes the two in some way, and **that mix is what sets the four VEIRA colour limiters apart**. VEIRA Limiter Gold puts a gentle, oversampled **tape or tube stage** first. It rounds the peaks the way analog gear does, with smooth, low-order harmonics, so the clean true-peak brickwall behind it has less to do. That rounding is the warmth you hear.

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 Gold reports to your DAW so everything stays in time.

What happens inside VEIRA Limiter Gold

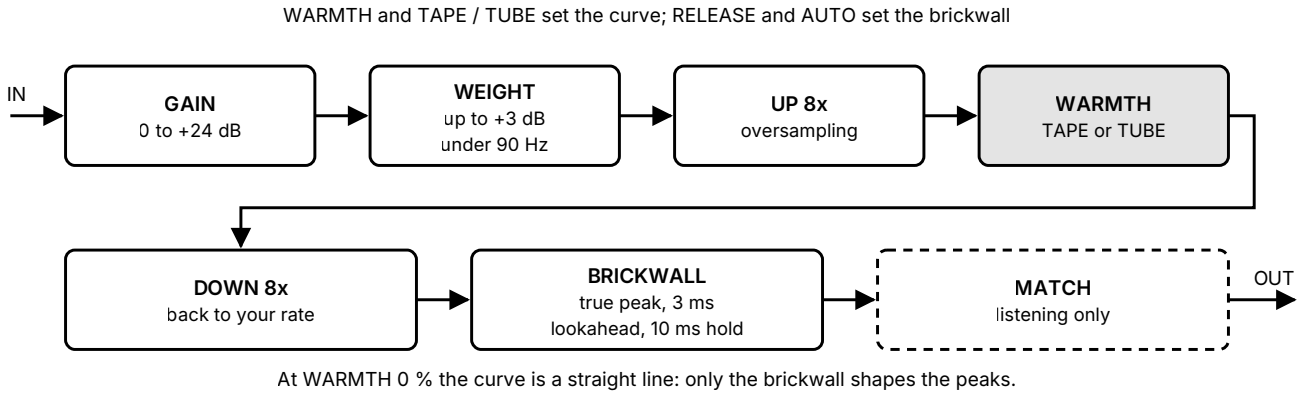


FIGURE 8 Signal flow. GAIN and WEIGHT drive the music into the warmth stage, which runs at eight times the sample rate so its harmonics don't fold back. The brickwall then holds the true peak under the ceiling. MATCH only turns down what you hear while playing.

- **The warmth stage** bends the wave smoothly, measured against the ceiling. Its slope at the centre is exactly 1, so quiet signals pass at their own level; it bends gently as the level rises, so the body gets low-order harmonics and the peaks round off; and its top never comes under the ceiling, so it shapes the peaks without ever clipping them flat.
- **Oversampling.** Eight times around the warmth, with linear-phase filters flat to 19.4 kHz at 44.1 kHz, so what the curve adds above the audio band is filtered out instead of folding back.
- **The brickwall** reads the true peak at eight times the sample rate, links the two channels, holds the gain each peak needs over a 3 ms lookahead and for 10 ms after it, and smooths it so every peak gets at least

the reduction it needs. It aims 0.05 dB under the ceiling, and a last clip at the ceiling catches rounding residue. The 10 ms hold is what keeps bass clean: a 50 Hz sine driven 6 dB into it at WARMTH 0 % comes out with under 0.001 % distortion.

- **Latency.** 271 samples at 48 kHz (5.6 ms), always the same and reported to your DAW. The host's bypass is delayed by the same amount.

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 Gold'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.

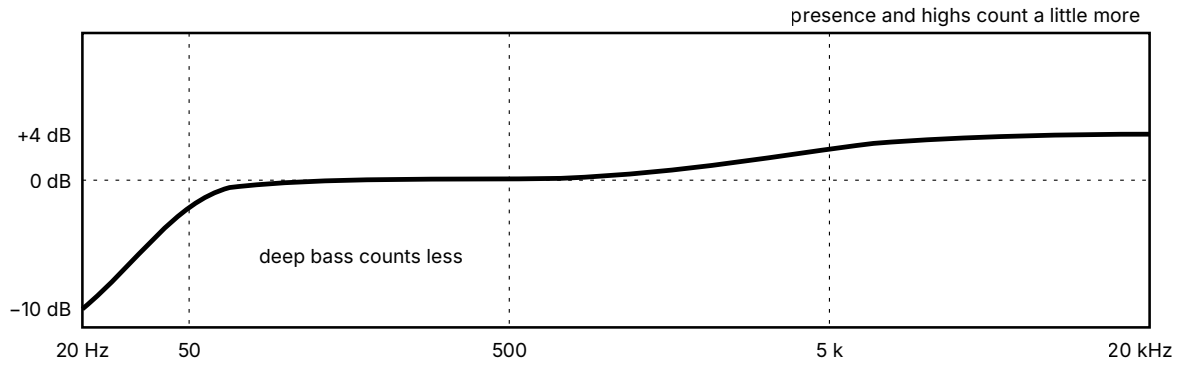


FIGURE 9 K-weighting, roughly. Before loudness is averaged, very low frequencies are turned down and the highs are lifted about 4 dB, so the number follows what ears hear.

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.

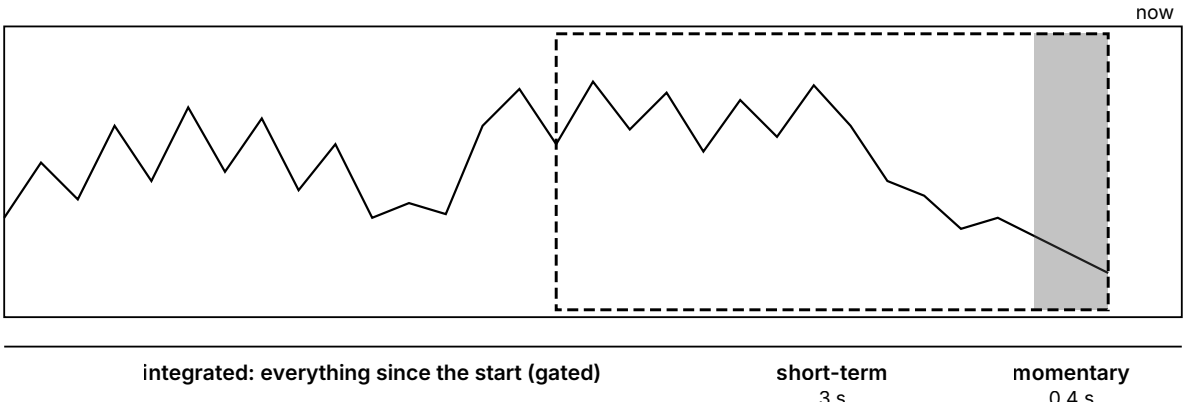


FIGURE 10 The three windows, ending at the present moment (right). The momentary reading is the shaded strip, short-term the dashed box, and integrated the whole span.

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

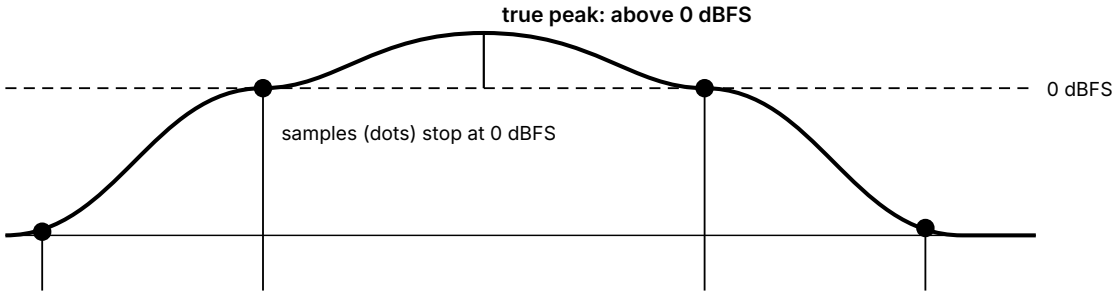


FIGURE 11 An inter-sample peak. The dots are the samples a file stores; the line is the wave a converter or a codec rebuilds from them.

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.

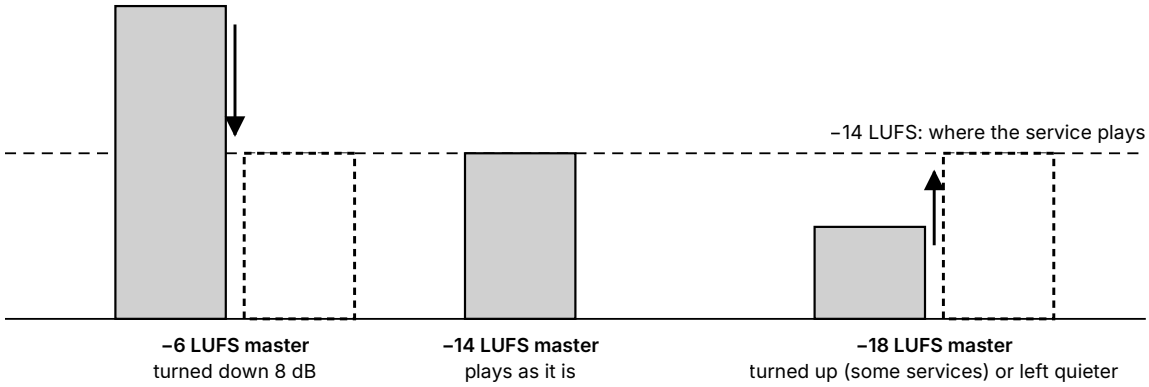


FIGURE 12 Normalisation. Grey is the master as delivered, dashed is how it plays. All three end up at the same loudness; the loud one has only lost its dynamics.

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 Gold 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.

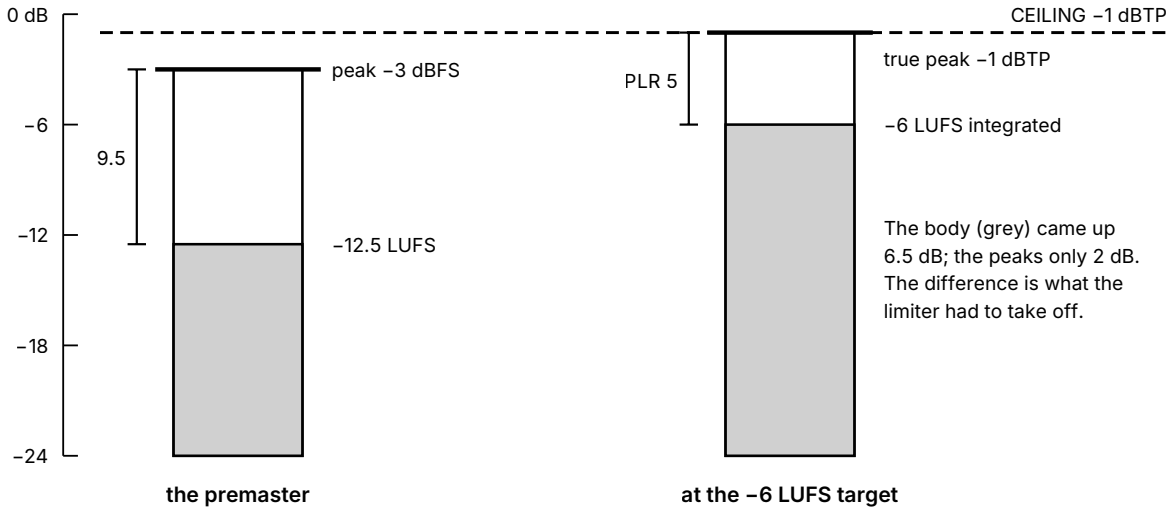


FIGURE 13 A dense premaster (left) peaking at −3 dBFS reads about −12.5 LUFS: a PLR of 9.5 dB. At −6 LUFS with a −1 dBTP ceiling (right) the PLR can be at most 5 dB. The body has to come up 6.5 dB while the peaks may rise only 2.

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 Gold 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 EDM premaster	Pop premaster
Defaults (TAPE, WARMTH 50 %): loudness reached	−5.98 LUFS at GAIN +10.2 dB	−6.00 LUFS at GAIN +15.8 dB
True peak (BS.1770 / 16x)	−1.05 / −1.04 dBTP, no overs	−1.05 / −1.04 dBTP, no overs
Gain swing per beat (pumping)	2.5 dB	3.5 dB
TUBE, WARMTH 50 %	−5.98 LUFS at +14.9 dB	−6.00 LUFS at +20.0 dB
WARMTH 0 % (no colour): the loudest it gets	−7.1 LUFS at +24 dB	−8.7 LUFS at +24 dB

What the warmth costs. Gold's colour *is* gentle distortion, by design: low-order harmonics, mostly the 3rd with TAPE and the 2nd with TUBE, with the higher ones far down (the 5th about 78 dB under a 100 Hz note at the defaults). That is warmth, not grit, and it is what lets Gold reach −6 LUFS on a dense mix: the warmth stage rounds the fastest peaks inside the waveform. Without it (WARMTH 0 %), Gold is a plain transparent limiter, and on the same dense mix its loudness stops near −7.1 LUFS; past that, more GAIN only adds reduction. If a mix should reach −6 LUFS with no colour at all, use 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 14 The LEVEL group: 1 GAIN and 2 CEILING, each showing its value in its middle.

Control	Range	Default	What it does
GAIN	0 to +24 dB	+0.0 dB	How hard the music is pushed into the warmth 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, and with Gold it is also part of the colour: the harder you push, the more the warmth stage rounds and the more harmonics it adds. There is no automatic loudness: set GAIN by ear and by the loudness panel. On a dense EDM premaster (about −11 LUFS at −3 dBFS peak), about +10 dB reaches −6 LUFS at the defaults; a more dynamic pop premaster needs about +16 dB.

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 masters going to low-bitrate formats. The warmth is measured against the ceiling, so it keeps its character at any ceiling. You can also set the ceiling on the waveform: **drag the ceiling line**, or **double-click it** to return to −1.0 dBTP.

WARMTH: WARMTH, WEIGHT, TAPE and TUBE

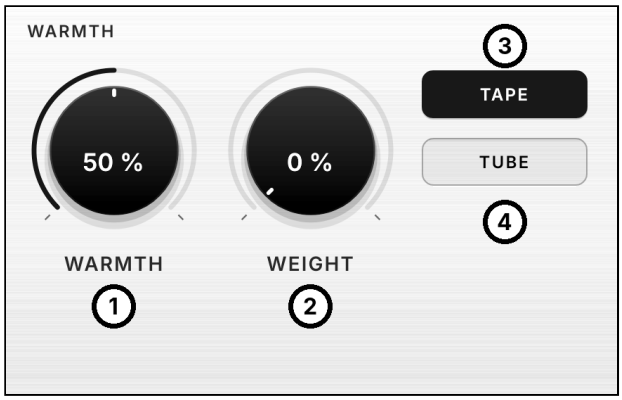


FIGURE 15 The WARMTH group: 1 WARMTH, 2 WEIGHT, 3 TAPE (lit) and 4 TUBE.

Control	Range	Default	What it does
WARMTH	0 to 100 %	50 %	How much tape or tube saturation the music gets before the limiter. 0 % is clean.
WEIGHT	0 to 100 %	0 %	Up to +3 dB of low end under about 90 Hz, before the warmth.
TAPE / TUBE	one of two	TAPE	The character of the warmth. Switching crossfades over 20 ms.

WARMTH

WARMTH is the drive of the warmth stage. More gives the body more harmonics and rounds the peaks more, so the limiter behind it works less for the same loudness. Because the curve is measured against the ceiling, WARMTH mostly touches what is loud: the quiet parts of a song pass almost untouched, and the colour grows in the choruses.

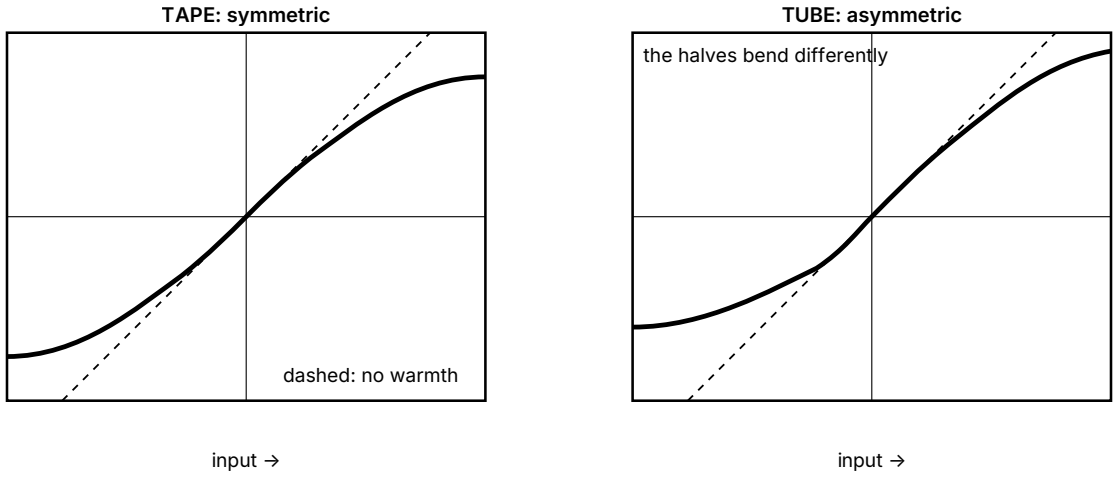
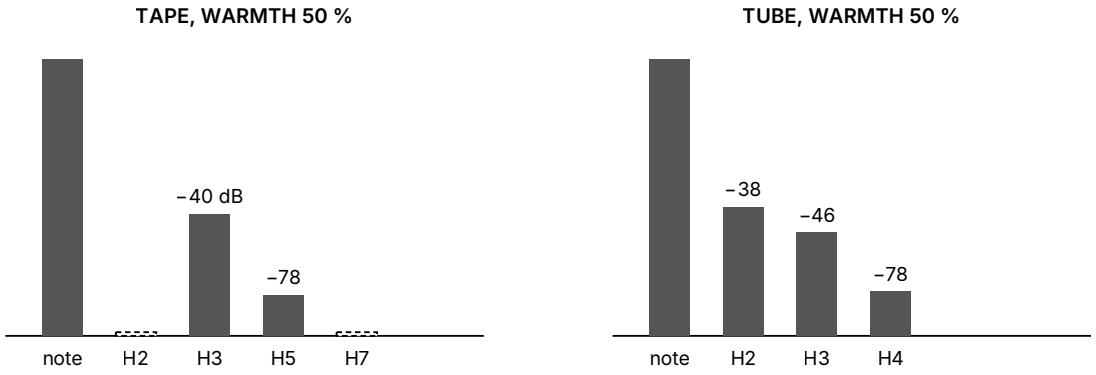


FIGURE 16 The warmth curves, roughly (output against input, both measured against the ceiling). Near the centre both follow the dashed line: quiet music passes at its own level. Towards the edges they bend smoothly: TAPE the same way up and down, TUBE a little differently on each side, which is where its 2nd harmonic comes from.

TAPE and TUBE

- TAPE is symmetric: mostly the **3rd harmonic**, with the 5th and 7th falling away fast. Around the curve sits tape's record EQ (the highs lifted before the curve and lowered by exactly the same amount after it), so loud cymbals and hats round off a little sooner than the body, as they do on tape. Firm, glued, a little softer on top.
- TUBE is asymmetric: the **2nd harmonic** leads, then the 3rd. Fuller and rounder, with the highs left more open. Its even part is filtered under 25 Hz, so loud passages never come out as thumps.



A 100 Hz note 3 dB under the ceiling: about 1.0 % of harmonics with TAPE, 1.4 % with TUBE, each one far under the note (dBc).

FIGURE 17 What each style adds to a 100 Hz note at the defaults, measured (heights roughly to scale). TAPE makes odd harmonics, TUBE leads with the 2nd. Both stay low-order: the higher harmonics are 78 dB and more under the note.

WEIGHT

WEIGHT lifts the low end, up to +3 dB under about 90 Hz, **before** the warmth stage. The bass is fuller, and because it is louder going into the curve, it drives the warmth a little more: the kick and the bass gain body and harmonics that make them easier to hear on small speakers. Use it on mixes that feel thin; leave it at 0 % on mixes with plenty of sub already. Lower it if the kick starts to get lost under the bass.

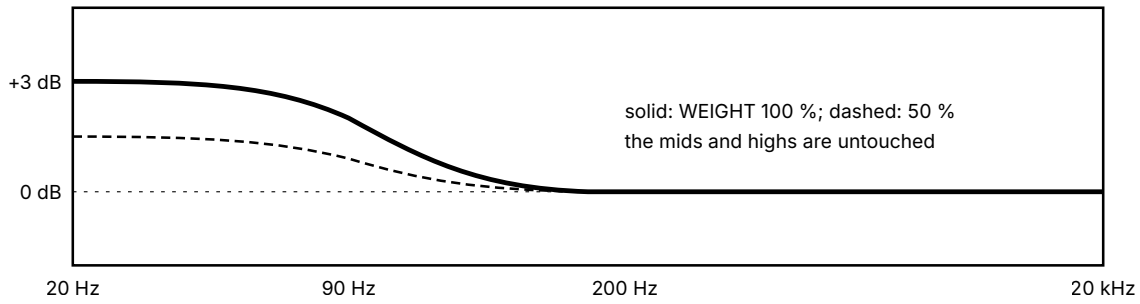


FIGURE 18 WEIGHT, roughly: a gentle low shelf before the warmth, up to +3 dB at 100 %.

LIMITER and LOUDNESS: RELEASE, AUTO, TARGET and MATCH

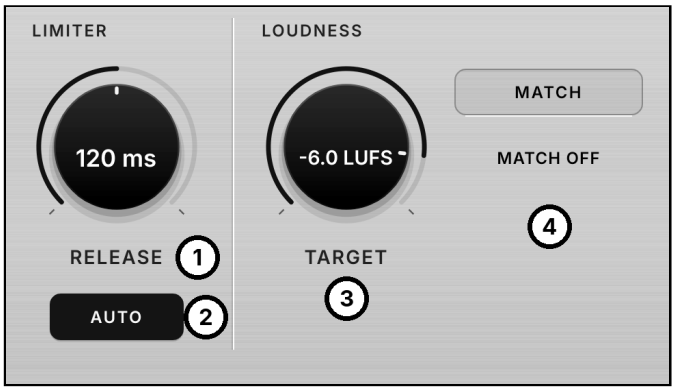


FIGURE 19 The LIMITER group: 1 RELEASE and 2 AUTO; the LOUDNESS group: 3 TARGET and 4 MATCH with its readout (MATCH OFF).

Control	Range	Default	What it does
RELEASE	5 to 1000 ms	120 ms	How quickly the brickwall lets go.
AUTO	on / off	on	Lets go quickly after short peaks and slowly through dense passages.
TARGET	−24 to −3 LUFS	−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.

RELEASE and AUTO

RELEASE is how quickly the brickwall recovers after a peak. Short releases (30–80 ms) are denser and louder; long ones (200–500 ms) are smooth and calm. With **AUTO** on (the default), the brickwall uses a fast and a slow envelope: it lets go quickly after short peaks and slowly through dense passages, so it doesn't pump. The 10 ms hold means a bass note can never ripple the gain, however short the release. Turn AUTO off for a single, fixed release, or for a deliberate pump (*Creative* ▸ *Warm Squash*).

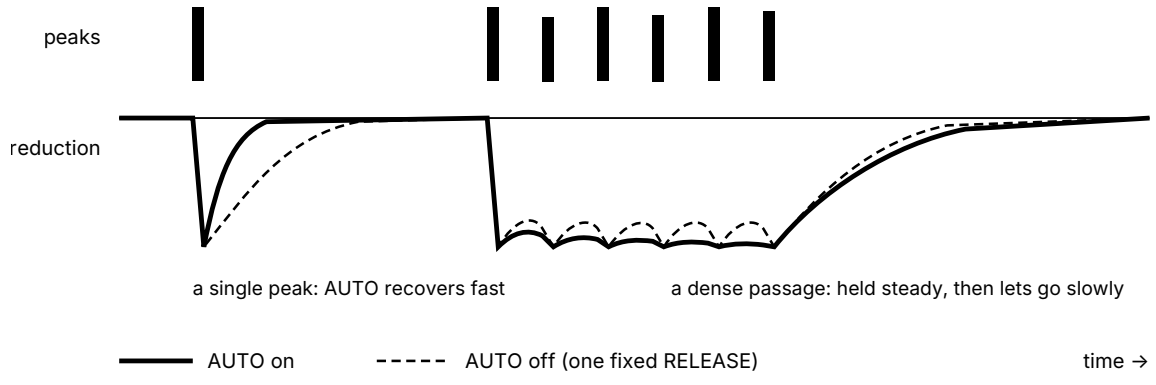


FIGURE 20 Gain reduction over time (down = more reduction). With AUTO off the gain swings up and down between closely spaced hits; with it on, an isolated peak recovers quickly and a run of hits is held steadily.

TARGET

TARGET is where you want the master to land, in LUFS integrated, from −24 to −3 LUFS. It does nothing to the sound: it moves the dashed line in the LOUDNESS lane and sets the reference for TO TARGET in the loudness panel. 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 Gold 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 warmth 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.

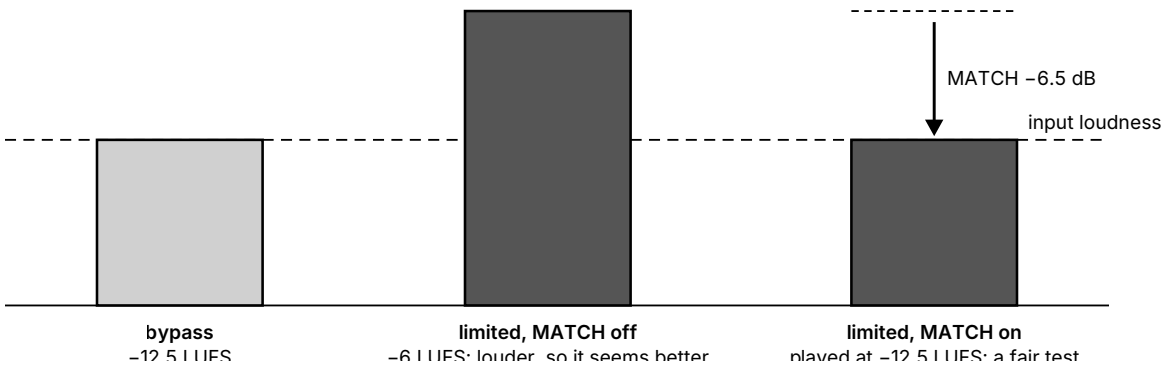


FIGURE 21 What MATCH does. Without it the limited master plays 6.5 dB louder than the bypassed premaster and wins every comparison. With it on, both play at the input's loudness, and only the change in sound is left to judge.

- 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

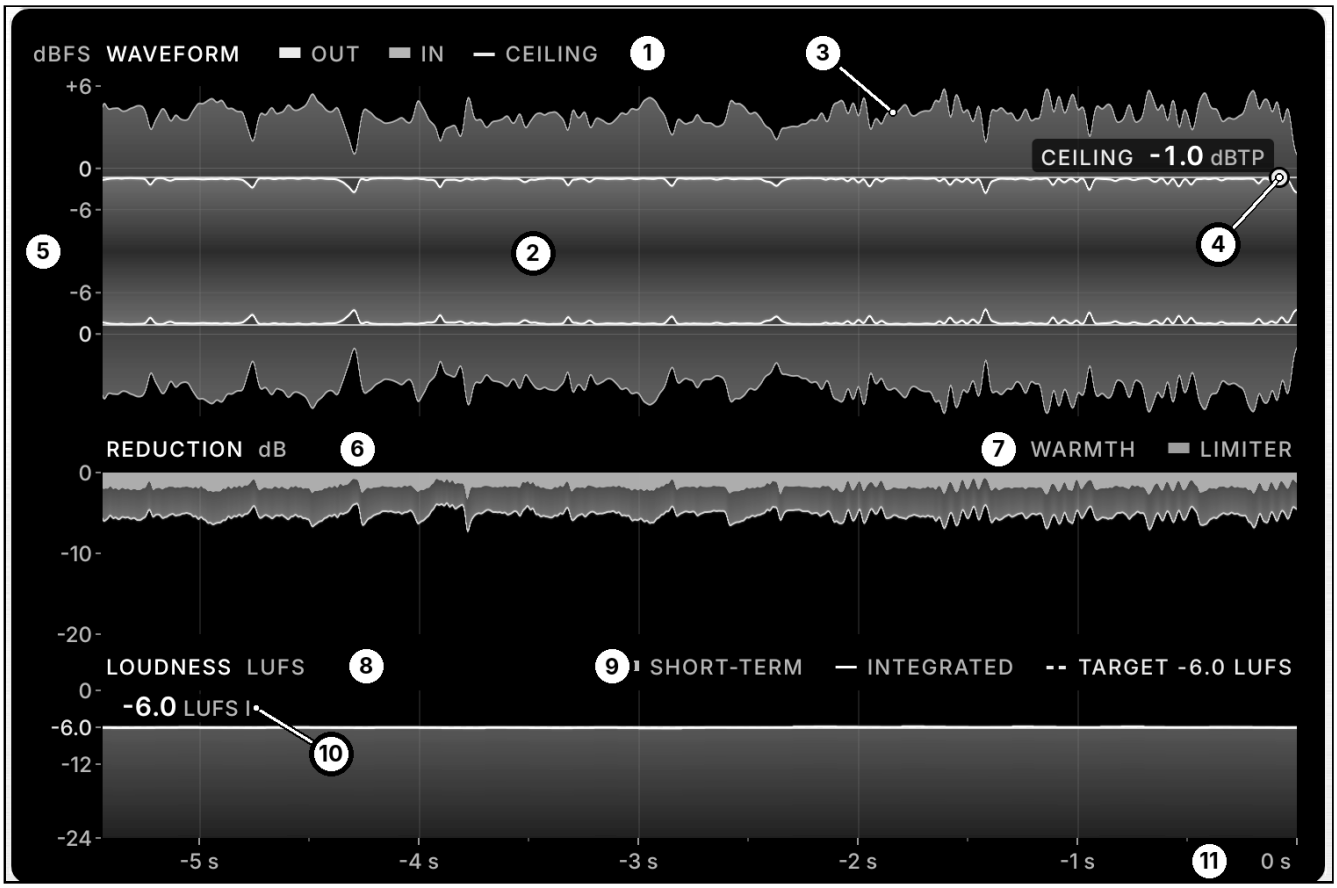


FIGURE 22 1 Legend, 2 output, 3 input, taken off, 4 ceiling line and grip, 5 level scale, 6 REDUCTION lane, 7 warmth and limiter key, 8 LOUDNESS lane, 9 its key with the TARGET, 10 the integrated loudness so far, 11 time scale.

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

Waveform. 2 The **output** is drawn in gold, 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: what Gold took off, the warmth's rounding and the limiter's reduction together. In print the output is the band in the middle and the input the paler shape 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. **Drag** the line (or its round grip) to set CEILING; **double-click** it to return to −1.0 dBTP.

6 **REDUCTION** is the gain-reduction history, from 0 at the top down to -20 dB. 7 Two kinds are stacked: what the **warmth** stage rounded off (gold, from the top) and what the **limiter** took (red, under it). In print both hang from the top line, the warmth's share the lighter one. More WARMTH makes the gold band deeper and the red one thinner: the warmth is doing more of the work.

8 **LOUDNESS** draws the output's short-term loudness (3 s) as a filled curve, on a scale from 0 to -24 LUFS. 9 The key names its lines: SHORT-TERM (the filled curve), INTEGRATED (a thin line: the integrated loudness so far) and your TARGET (dashed). 10 The integrated loudness so far is also written at the top left of the lane (for example -5.9 LUFS I).

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

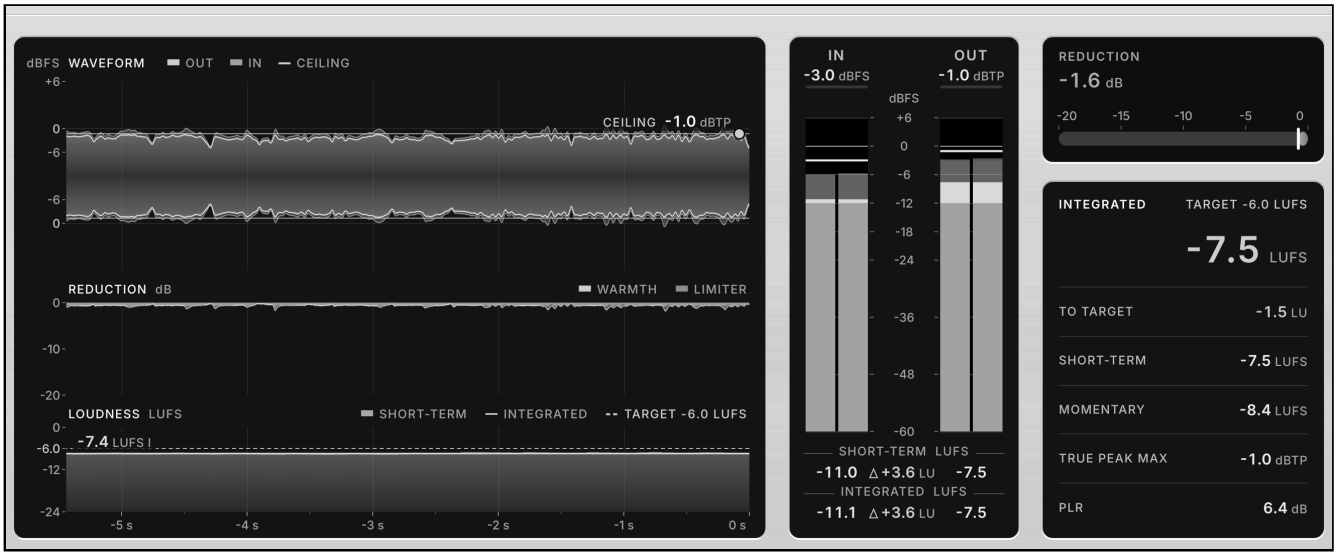


FIGURE 23 +4 dB of GAIN at the defaults (TAPE, WARMTH 50 %) on the dense EDM premaster: a gentle, warm master. The REDUCTION meter reads −1.6 dB, the lane barely moves, and integrated loudness reads −7.5 LUFS: TO TARGET shows −1.5 LU in gold, short of the −6 LUFS TARGET.



FIGURE 24 A pop premaster at +9.5 dB of GAIN with TUBE, WARMTH 70 %, WEIGHT 50 %, a 60 ms RELEASE without AUTO and a −8.0 LUFS TARGET: integrated loudness reads −7.6 LUFS and TO TARGET +0.4 LU, in green (within 0.5 LU). The gold band in the REDUCTION lane is the tube rounding the peaks; the red band under it is the limiter.

REDUCTION meter and loudness panel

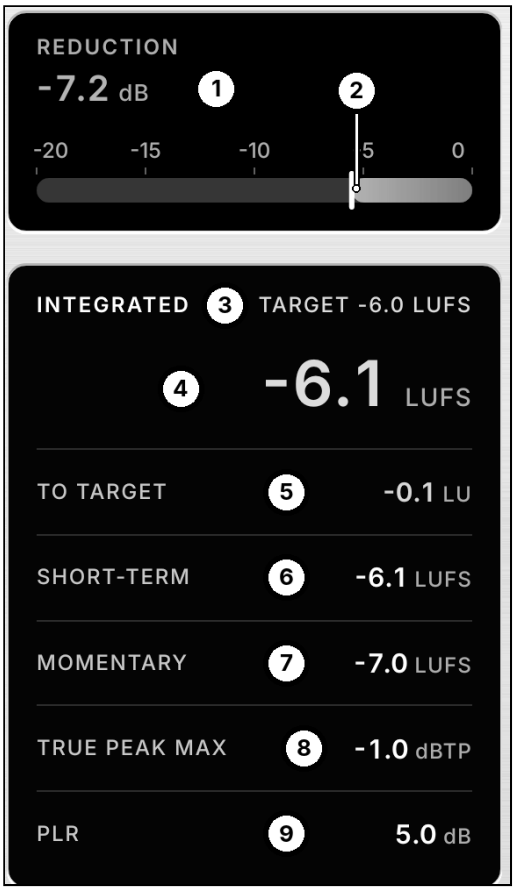


FIGURE 25 The [REDUCTION] meter: 1 its reading and 2 the bar under its scale; the loudness panel: 3 the [TARGET], 4 [INTEGRATED] loudness, 5 [TO TARGET], 6 [SHORT-TERM], 7 [MOMENTARY], 8 [TRUE PEAK MAX] and 9 [PLR].

1 **REDUCTION meter.** The total reduction now, the warmth stage and the limiter together, from 0 to −20 dB. 2 The bar (red on screen; in print, the lighter block) grows from the right-hand end, [O], towards the left. 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 Gold is working on average. The number shows the deepest reduction of the last quarter-second.

The **loudness panel** measures the output, after everything Gold 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.

	Reading	What it tells you
5	TO TARGET	INTEGRATED minus TARGET, in LU. Green within 0.5 LU of the target; gold otherwise.
6	SHORT-TERM	Loudness over the last 3 s.
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)

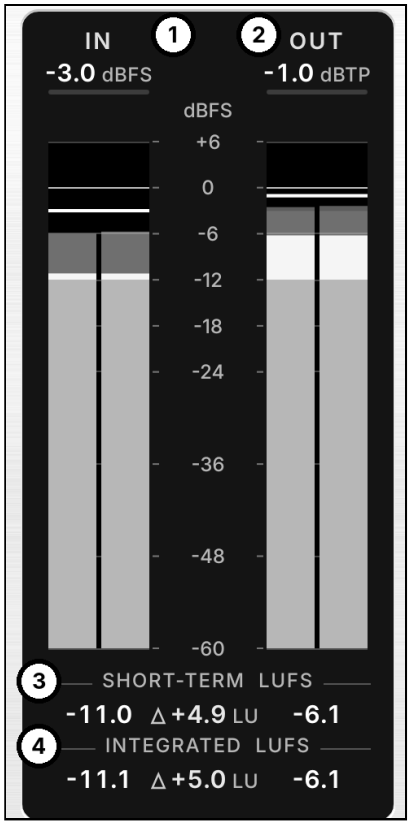


FIGURE 26 The meter bridge: 1 input and 2 output (the output in dBTP), 3 short-term and 4 integrated loudness, with the OUT − IN difference between them.

VEIRA Limiter Gold 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 Gold 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 Gold 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.

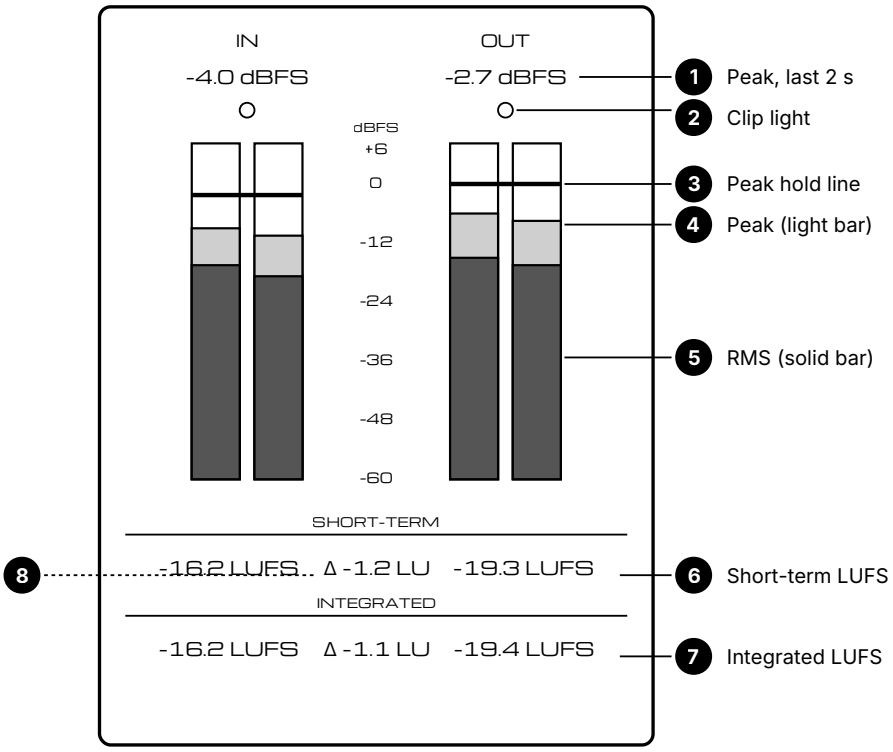


FIGURE 27 The meter bridge, left and right channel bars for input and output, with loudness below.

- 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.

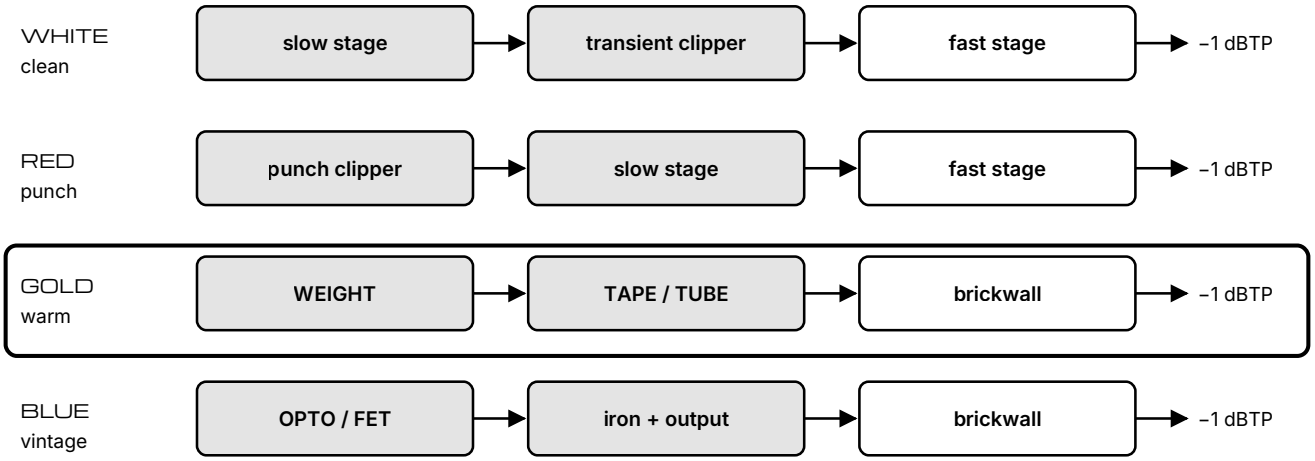
- **8 Δ (delta):** OUT minus IN, in LU. It tells you how much louder (+) or quieter (−) VEIRA Limiter Gold made the signal, so you can match levels fairly when you compare with bypass. It reads [--] while either side is too quiet to measure (below −70 LUFS).

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 Gold 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.

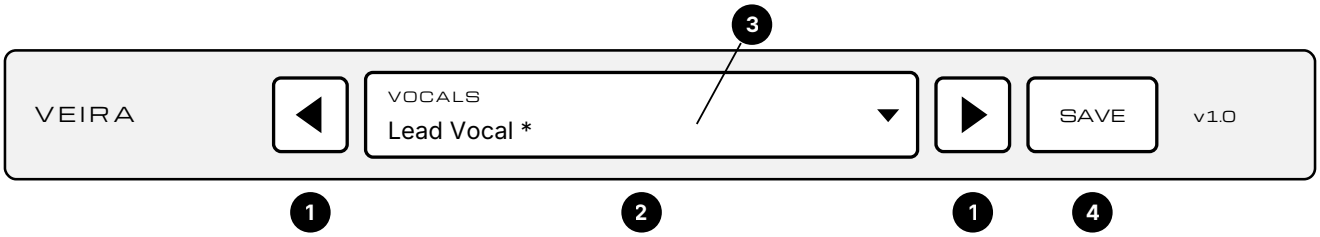
Gold is the warm one. Reach for it when a loud master sounds hard or thin, and you want it rounder and richer rather than simply louder. At WARMTH 0 % it is a transparent true-peak limiter, so you can always dial the colour back. For the cleanest sound at −6 LUFS, try White; for drums that hit harder, Red.

Presets

VEIRA Limiter Gold comes with **40 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 Gold 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 Gold/<Folder>/
Windows	%APPDATA%\VEIRA\VEIRA Limiter Gold\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	Gold Standard, Clean Loud, Tape Glue, Tube Polish, Gentle Master, Maximum Gold
Pop	Pop Radio, Pop Ballad, Bright Pop, Pop Punch
EDM	EDM Festival, Club Master, House Groove, Techno Drive, Future Bass
Hip-Hop	Hip-Hop Master, 808 Weight, Boom Bap Tape, Trap Loud
Rock	Rock Master, Indie Warmth, Hard Rock, Garage Tape
Acoustic	Acoustic Master, Singer-Songwriter, Jazz Gold, Folk Warmth
Stems and Buses	Drum Bus Warmth, Music Bus Tube, Vocal Bus Tape, Stem Safety
Streaming	Streaming -14, Streaming -14 Clean, Streaming -16, Lossy Safe -2 dBTP
Creative	Tape Saturated, Tube Drive, Max Weight, Warm Squash

Levels matter. Each preset's GAIN was set so its folder's material (synthetic premasters peaking at −3 dBFS: a dense EDM mix about −11 LUFS, pop about −14, hip-hop −13, rock −14, acoustic −17, buses −10 to −15) lands on the preset's TARGET. On your music, GAIN is the first thing to adjust: turn it until TO TARGET reads 0.0, by ear and by the loudness panel. Every preset was measured through the plugin on its material and on the dense EDM premaster: no overs. On material already louder than their target, the −14 and −16 LUFS presets land a little louder at 0 dB of GAIN; that is the material, not the preset. 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 warm, loud master at −6 LUFS

1. Put Gold last on your master bus. Load **Mastering ▸ Maximum Gold** (TAPE, WARMTH 75 %, RELEASE 80 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 kick loses its snap, back GAIN off a dB; if cymbals turn soft, lower WARMTH.
5. Turn MATCH off. TRUE PEAK MAX reads about −1.0 dBTP.

Choose TAPE or TUBE

1. Load **Mastering ▸ Gold Standard** and set GAIN for your TARGET.
2. Switch MATCH on. Flip between TAPE and TUBE (the switch crossfades, so you can do it while playing).
3. TAPE is firmer and a little softer on top; TUBE fuller and more open. TUBE needs a few dB more GAIN for the same loudness: retrim GAIN by TO TARGET.

More body for a thin mix

1. Load **Hip-Hop ▸ 808 Weight** or raise WEIGHT on your own setting.
2. Raise WEIGHT until the bass feels full on small speakers. Lower it if the kick gets lost under the 808.

A master for streaming at −14 LUFS

1. Load **Streaming ▸ Streaming -14** (a little tape warmth) or **Streaming -14 Clean** (WARMTH 0 %).
2. Play the whole song and set GAIN until TO TARGET reads 0.0.

Warmth on a bus

1. On a drum bus, load **Stems and Buses ▸ Drum Bus Warmth** (TAPE, WARMTH 70 %, a −3 dBTP ceiling).
2. Raise GAIN until the REDUCTION lane shows a few dB on the hits: tape rounds the transients and thickens the kit, with headroom left for the mix.

Tape as an effect

1. Load **Creative ▸ Tape Saturated** (WARMTH 100 %) or **Tube Drive**.
2. Blend WARMTH down until the colour sits where you want it; **Warm Squash** adds a fast, deliberately pumping release.

Specifications

Type	Warm mastering limiter: tape or tube warmth into a true-peak brickwall
Channels	Mono and stereo
Latency	271 samples at 48 kHz (5.6 ms; 259 at 44.1 kHz), constant, reported to the host; the DAW's bypass is delayed by the same amount
Ceiling accuracy	A −1.0 dBTP ceiling reads −1.05 dBTP on a BS.1770 meter (−1.04 on a 16x reconstruction); no overs
Warmth	TAPE (symmetric, odd harmonics, tape record EQ) or TUBE (asymmetric, 2nd harmonic first); 8x oversampled
Measured (100 Hz, 3 dB under the ceiling)	TAPE 50 %: 1.0 % THD (H3 −40, H5 −78 dBc); TUBE 50 %: 1.4 % (H2 −38, H3 −46 dBc); WARMTH 0 %: under 0.0001 %
Aliasing	Worst product with high tones driven 6 dB into the ceiling: −115 dBc (TAPE 50 %); under −104 dBc at WARMTH 100 %
Brickwall	True peak (8x), linked, 3 ms lookahead, 10 ms hold
GAIN	0 to +24 dB (default +0.0 dB)
CEILING	−12 to 0 dBTP (default −1.0 dBTP)
WARMTH	0 to 100 % (default 50 %)
WEIGHT	0 to 100 % (default 0 %): up to +3 dB under about 90 Hz
TAPE / TUBE	Default TAPE; switching crossfades over 20 ms
RELEASE	5 to 1000 ms (default 120 ms)
AUTO	On / off (default on)
TARGET	−24 to −3 LUFS (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 warmth and limiter reduction and short-term and integrated 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	40 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 Vlgd

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 Gold 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 Gold is changing the level: another plugin, the master fader, a pan law, or a dither or format conversion in the bounce. Put Gold last and leave the master fader at 0 dB. On its own, Gold aims a hair under the ceiling (0.05 dB under it), so a −1.0 dBTP ceiling reads about −1.05 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. Gold'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 Gold will of course differ.

I can't reach my TARGET. Raise GAIN while watching INTEGRATED, and check WARMTH: at 0 % Gold is a plain limiter, and on a dense mix its loudness stops near −7 LUFS. Some WARMTH (40–75 %) rounds the peaks inside the waveform, which is what reaches −6 LUFS. If the reduction keeps growing and the loudness has stopped moving, lower the TARGET a dB rather than pushing on.

Everything sounds flat or distorted. Too much GAIN or too much WARMTH for this music. If the cymbals turn soft, lower WARMTH or switch to TUBE; if the bass gets grainy, lengthen RELEASE or lower WEIGHT. Then compare with MATCH: warmth that sounds good louder may sound thick at equal loudness.

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 Gold add latency? Yes: 271 samples at 48 kHz (5.6 ms; 259 at 44.1 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 Gold · User Manual · Version 0.1.0

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

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