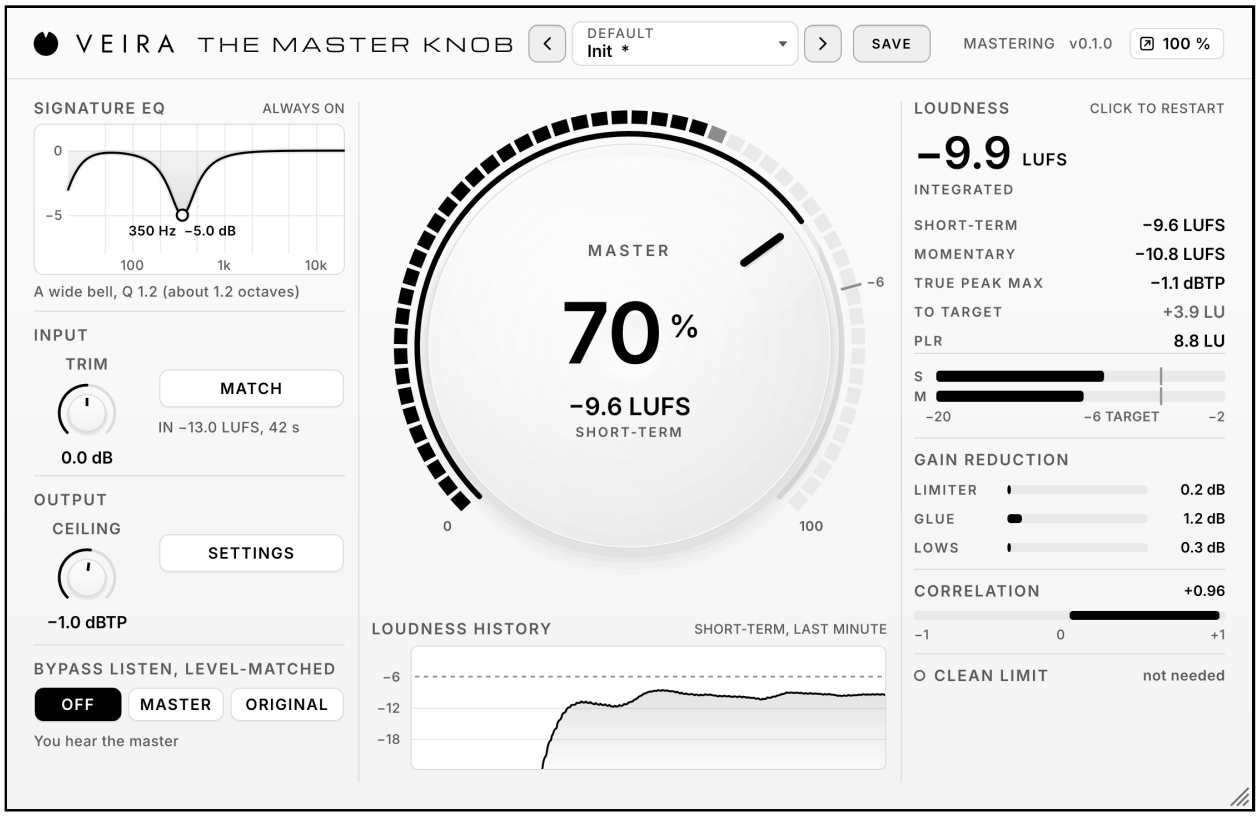
VEIRA

MASTERING

The Master Knob

User Manual

One giant knob that masters a song: turn MASTER up and it gets louder in even steps, under a true-peak ceiling that holds, with a signature cut of −5 dB at 350 Hz always on and everything else automatic.



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Welcome

Thank you for choosing **The Master Knob**. It is a mastering plugin with one control that matters: MASTER. Put it last on your mix bus or on a finished mix, turn the knob up, and the song gets louder, a little more at every step, while everything a finished master needs (glue, density, a touch of air, mono lows and a limiter that holds the ceiling) works a little firmer behind it, automatically.

The Master Knob also has a sound of its own: a wide, deep cut of **−5.0 dB at 350 Hz** that is always on, at every position of the knob. It takes out the boxy, cardboard part of the low mids that crowds a dense mix, so the low end and the voice have room. That cut is the signature of The Master Knob; you can't switch it off, and that is the point.

How loud it goes. At the top of the knob, a typical dense, well-balanced mix (premastered at about −13 LUFS) reaches about **−6 to −7 LUFS** integrated, kept clean. A bass-heavy mix stops sooner, at about **−8 LUFS**: the limiter refuses to clip bass waves, because that is where loud masters start to sound distorted. The Master Knob always chooses clean over loud.

What makes it different

- **One knob, even steps:** each 10 % of MASTER adds about 0.6 to 0.9 LU on a typical mix, from about −13.7 LUFS at 0 % to about −6.7 LUFS at 100 %.
- **A signature tone:** −5.0 dB at 350 Hz, Q 1.2, always on, with a 20 Hz high-pass for rumble and DC.
- **Clean at the top:** a true-peak limiter with a transient clipper that never touches bass waves or sustained notes, and a CLEAN LIMIT that backs the drive off when a mix is pushed too hard.
- **The same every time:** the knob follows a fixed, measured curve, so the same mix and the same setting always give the same master, live or bounced.
- **A fair comparison:** BYPASS LISTEN plays the master turned down to the original's loudness, or the original itself, so you hear what the master does rather than that it is louder.
- **21 factory presets** in 5 folders, from barely there to the top of the knob.

How this manual is organised. *Getting started* installs and activates the plugin. *The panel at a glance* names its parts. *How mastering for loudness works* explains the idea and what happens inside. *The knob*, *Input and MATCH*, *Output*, *Bypass listen* and *The meters* go through the panel. *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:

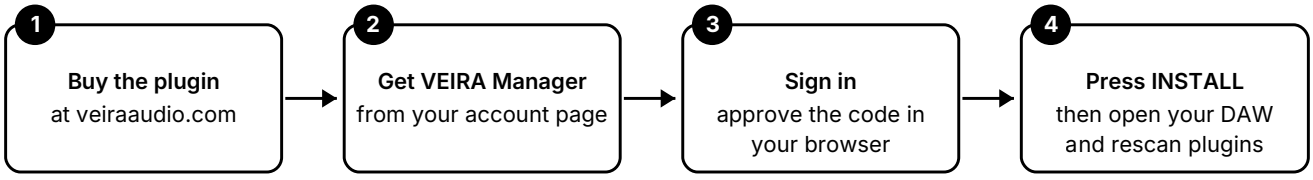


FIGURE 1 From purchase to first sound in four steps.

1. **Buy** The Master Knob 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 The Master Knob in the list and press INSTALL. When it says SHOW, it's installed. Open your DAW and let it rescan its plugins.

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

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, The Master Knob 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.

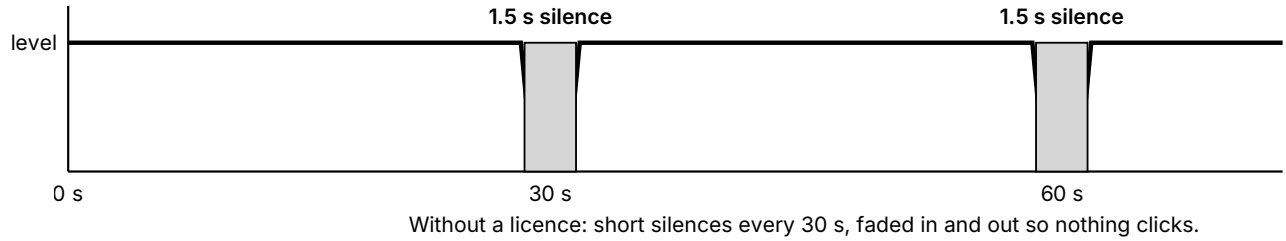


FIGURE 2 What an unlicensed copy does. With a valid licence the audio is never touched.

- **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 The Master Knob. 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 The Master Knob 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

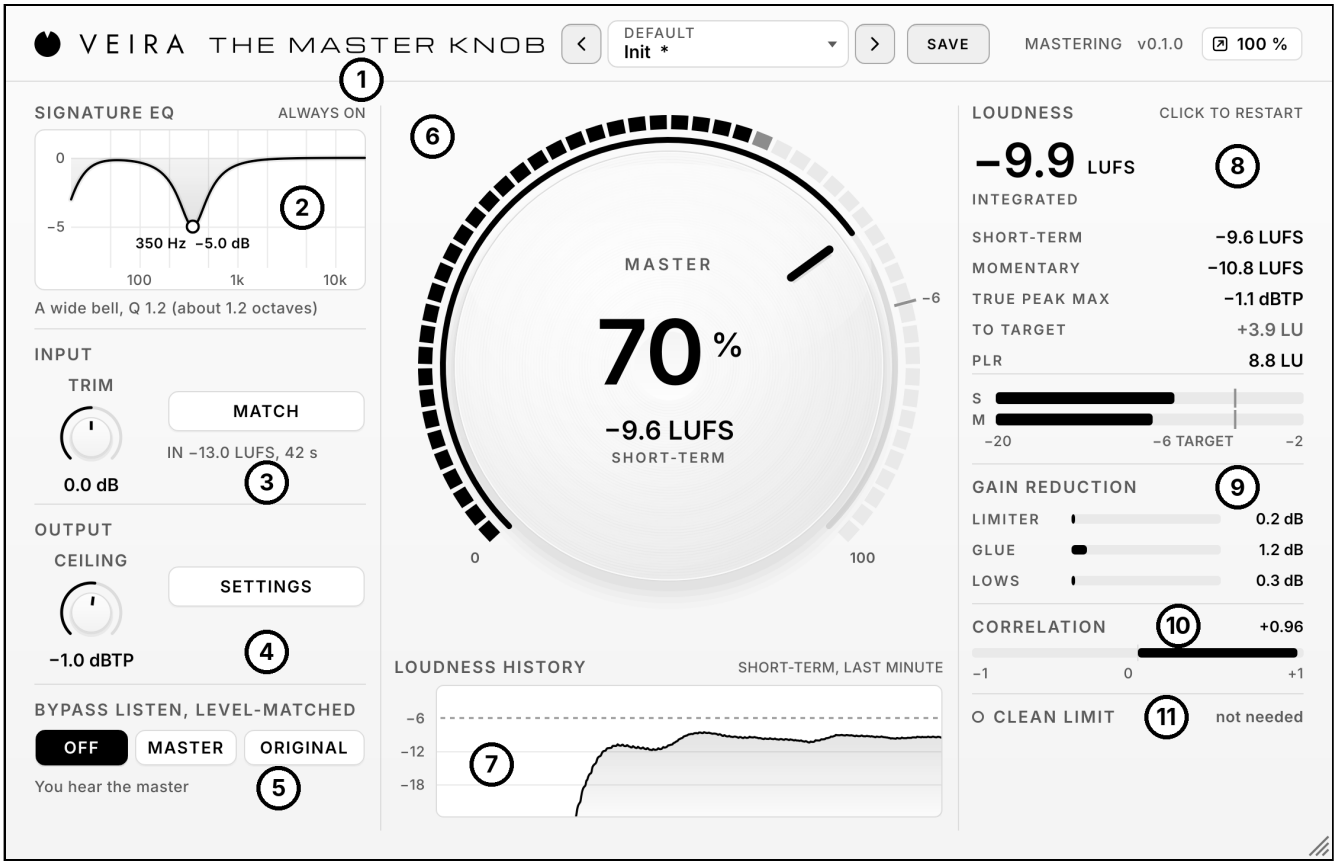


FIGURE 3 The Master Knob at MASTER 70 % with a song playing: 1 the header, 2 SIGNATURE EQ, 3 INPUT, 4 OUTPUT, 5 BYPASS LISTEN, LEVEL-MATCHED, 6 MASTER, 7 LOUDNESS HISTORY, 8 LOUDNESS, 9 GAIN REDUCTION, 10 CORRELATION and 11 CLEAN LIMIT.

	Part	What it holds
1	Header	The VEIRA logo and the name, the preset browser, SAVE, what it is (MASTERING), the version and the size button.
2	SIGNATURE EQ	The fixed tone, drawn from the filters' own maths: −5.0 dB at 350 Hz. ALWAYS ON.
3	INPUT	TRIM, MATCH and the input's measured loudness.
4	OUTPUT	CEILING (the output ceiling, in true peak) and SETTINGS (dither and restarting the meters).
5	BYPASS LISTEN, LEVEL-MATCHED	OFF, MASTER and ORIGINAL, and a line saying what you hear.
6	MASTER	The knob: its value, the live short-term loudness, and the ring of segments that lights with the loudness.

	Part	What it holds
7	LOUDNESS HISTORY	The short-term loudness over the last minute, against the −6 LUFS line.
8	LOUDNESS	Integrated loudness in large figures; short-term, momentary, true-peak maximum, to target and PLR; the short-term and momentary bars.
9	GAIN REDUCTION	How much the LIMITER, the GLUE and the LOWS band are taking off.
10	CORRELATION	The stereo correlation, −1 to +1.
11	CLEAN LIMIT	Lit when MASTER asks for more than the music can take cleanly.

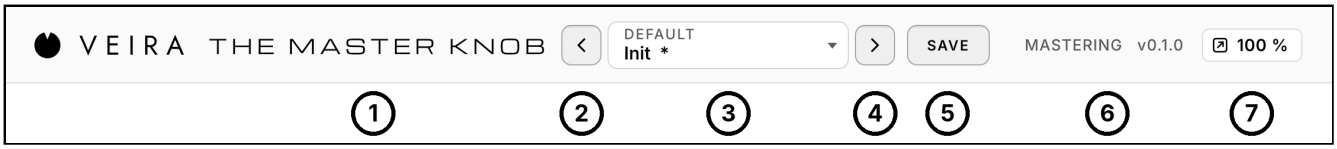


FIGURE 4 The header: 1 the VEIRA logo and the name, 2 and 4 the previous and next preset, 3 the preset's folder and name (an asterisk: changed since it loaded), 5 SAVE, 6 what it is and the version, and 7 the size button, here at 100 %.

Using the controls

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

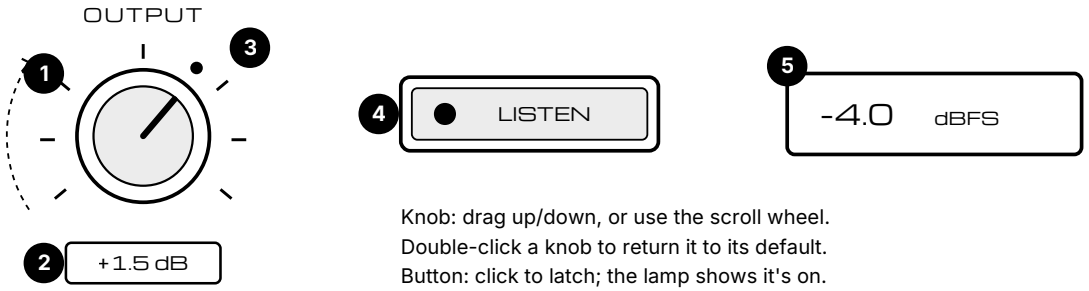


FIGURE 5 The parts you'll find on every VEIRA panel (the labels are examples).

- 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).

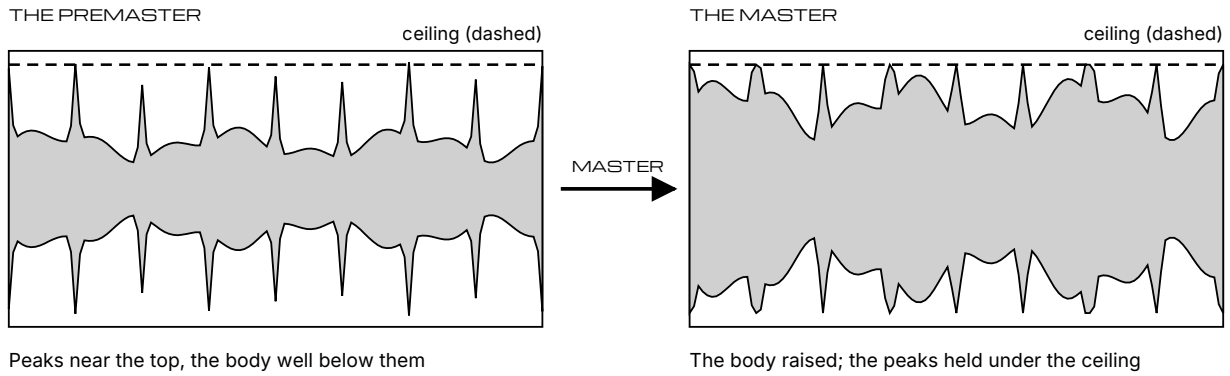
On The Master Knob's panel the parts look a little different from the drawing above. The face is drawn in VEIRA's clean style: off-white paper, charcoal type and hairlines.

- MASTER **is a large white disc** with a thick charcoal pointer. Its value is printed in large figures in its middle (70 %), with the live short-term loudness under it. Drag up and down or use the wheel; double-click for 50 %; right-click (Control-click on a Mac) to type a value.
- TRIM **and** CEILING **are small white knobs** with a charcoal arc and their value under them. Double-click for the default (0.0 dB, −1.0 dBTP); right-click to type.
- **Keys** are flat, rounded and white; the chosen one is filled in charcoal with white type (OFF in the picture above).
- **Amber** marks the −6 LUFS target everywhere: on the ring, on the bars, in the history and in TO TARGET. In print it is the dashed line and the mark labelled −6.
- **Tooltips** explain every control: hover over it.
- **The window size.** The Master Knob opens at 100 %, 1120 × 720 points. To change it, click the size button 7 in the header and choose 75, 90, 100, 125, 150 or 200 % or *Fit to screen* (sizes that don't fit your display are left out); or drag the grip in the bottom-right corner (double-click it for 100 %); or press Cmd + = and Cmd + - (Ctrl on Windows) to step up and down and Cmd + 0 for 100 %. Your DAW saves the size with the session, and new instances open at the size you chose last.

How mastering for loudness works

Loud and clean in a few words

A finished mix still has a lot of space between its average level and its highest peaks: the drum hits stick out far above the body of the song. Mastering for loudness brings the body up while the peaks stay where they are, under a **ceiling** that nothing may cross. The song then sounds denser and louder at the same highest peak, like the finished records you compare it with.



Peaks near the top, the body well below them

The body raised; the peaks held under the ceiling

Louder on average, the same highest peak: the difference you hear as “a finished master”.

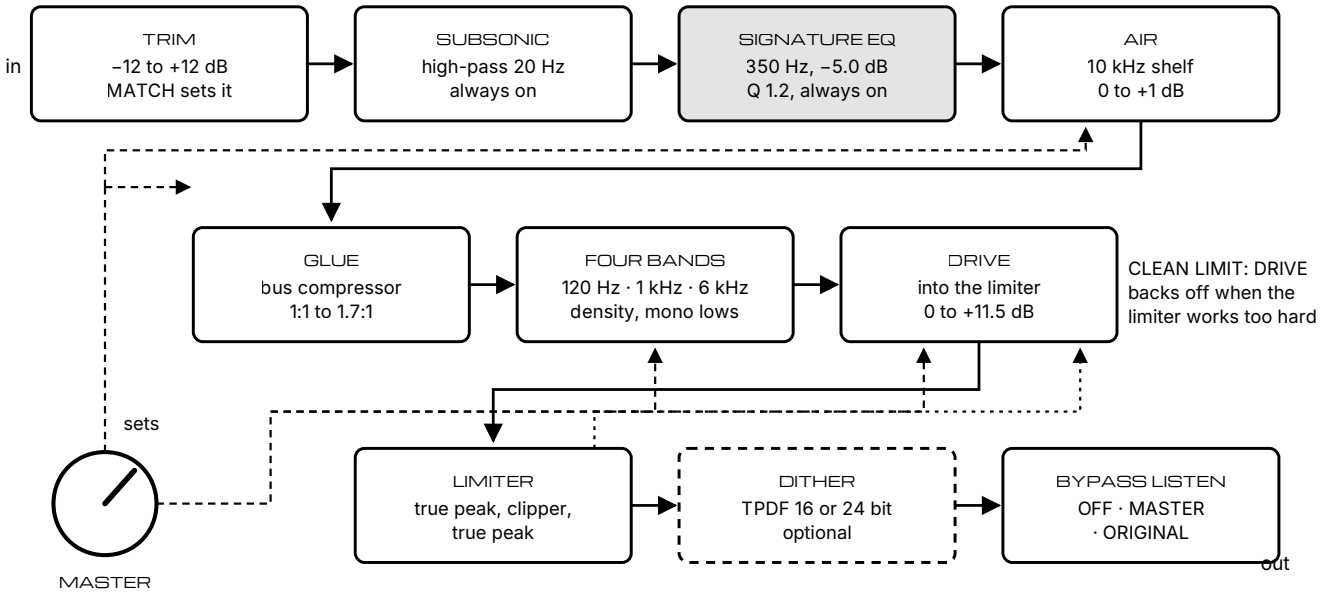
FIGURE 6 What a master does to a mix’s level: the body comes up, the highest peak stays under the ceiling.

The tool that holds the ceiling is a **limiter**: it turns the level down just enough, just in time, whenever a peak would go over. Push a mix into it a little and nothing is heard. Push it hard and the limiting starts to be heard: the bass gets fuzzy, the drums lose their snap, the whole song pumps. Every mastering engineer’s job is to stop before that, and to help the limiter with a few gentler steps before it: a little bus compression to glue the mix, some control of each frequency band, a touch of top end.

Loudness is measured in **LUFS** (loudness units relative to full scale), as streaming services and broadcasters measure it. **Integrated** loudness is the whole song’s; **short-term** is the last 3 seconds; **momentary** the last 0.4 seconds. Peaks are measured in **true peak** (dBTP), which includes the peaks that appear between the samples when the file is played or encoded.

What happens inside The Master Knob

The Master Knob does all of that in one chain, and lets [MASTER] decide how firmly each step works.



Grey: the signature tone, always on. Dashed: what MASTER sets. The ceiling is OUTPUT CEILING.

FIGURE 7 The chain, from the input to the output.

1. TRIM sets the level into the plugin; MATCH sets it for you (see *Input and MATCH*).
2. **Subsonic:** a 2nd-order high-pass at 20 Hz takes out DC and rumble. Always on.
3. **Signature EQ:** the bell at 350 Hz, −5.0 dB. Always on.
4. **Air:** a gentle shelf at 10 kHz, from 0 dB at 0 % to +1.0 dB at 100 %, because limiting dulls the top a little.
5. **Glue:** a stereo-linked bus compressor, from 1:1 (doing nothing) at 0 % to 1.7:1 at 100 %, with a 30 ms attack, an automatic release (150 ms after a transient, 900 ms after sustained compression) and a wide, 8 dB soft knee. It takes about 1 to 2.5 dB off at the top of the knob.
6. **Four bands:** the mix split at 120 Hz, 1 kHz and 6 kHz, each band gently evened out against its own slow level, and the lows under 120 Hz made mono.
7. **Drive and limiter:** MASTER sets the drive into the limiter on a measured curve; the limiter holds the CEILING in true peak. When the music can't take more cleanly, CLEAN LIMIT backs the drive off.
8. **Dither** (optional, off by default) for a 16-bit or 24-bit bounce.
9. BYPASS LISTEN, for listening only.

The result is **deterministic**: the knob follows a fixed curve, not a measurement of the song, and every setting is followed at fixed points of the stream. The same input with the same settings gives the same output, bit for bit, whatever your DAW's buffer size, whether you play it or bounce it.

> **Tip:** The Master Knob is made to be the last plugin on the master bus, or the only one on a finished stereo mix. Anything after it can push the peaks back over the ceiling.

The knob

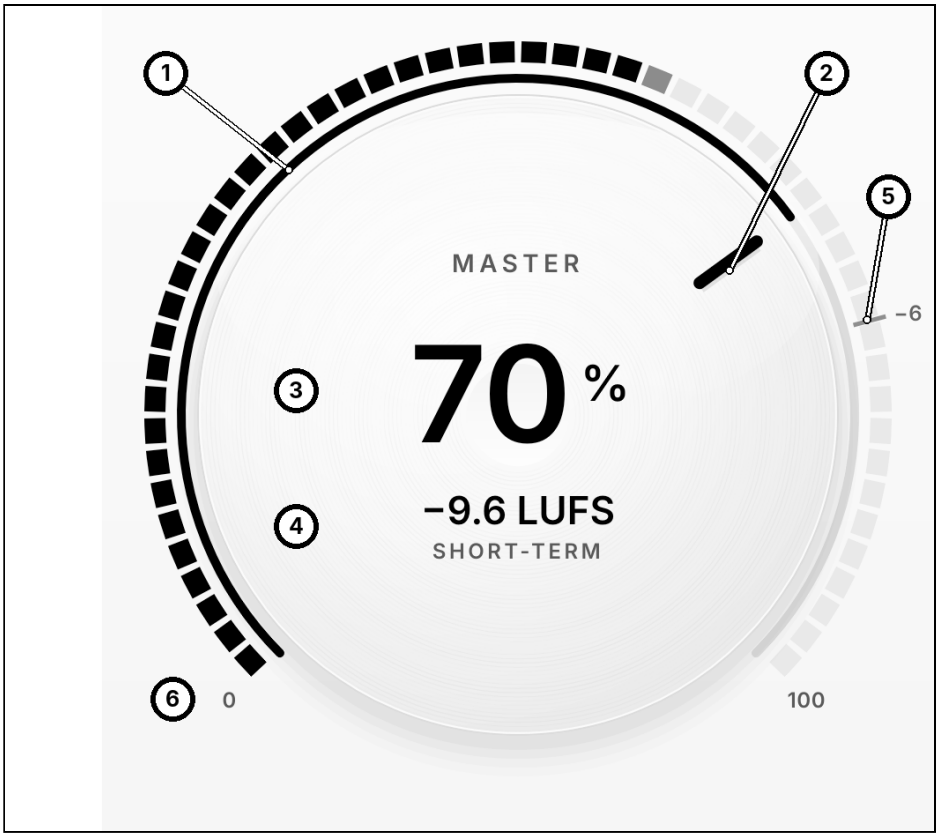


FIGURE 8 MASTER at 70 %: 1 the ring of segments, lit with the short-term loudness; 2 the pointer, with the thin arc showing the knob's travel; 3 the value; 4 the live short-term loudness; 5 the −6 LUFS target's mark; 6 the ends of the travel, 0 and 100.

Control	Range	Default	What it does
MASTER	0 to 100 %	50 %	How loud and how firm the master is. Sets the drive into the limiter and how firmly every helper works.

Turning it

- **0 %** is the mix with only the signature tone: the 350 Hz cut and the 20 Hz high-pass. No dynamics, no extra loudness. A premaster at −13 LUFS comes out at about −13.7 LUFS, the cut taking a little of its loudness.
- **Each 10 %** adds about 0.6 to 0.9 LU on a typical mix. The steps are even because the drive follows a curve measured on real-world-balanced premasters, steeper towards the top, where the limiter needs more drive for the same gain in loudness.
- **50 %** is about −10.6 LUFS: a firm, loud-enough master. It is where *Init* starts.
- **100 %** is as loud as The Master Knob goes cleanly: about −6 to −7 LUFS on a typical dense mix, about −8 LUFS on a bass-heavy one.

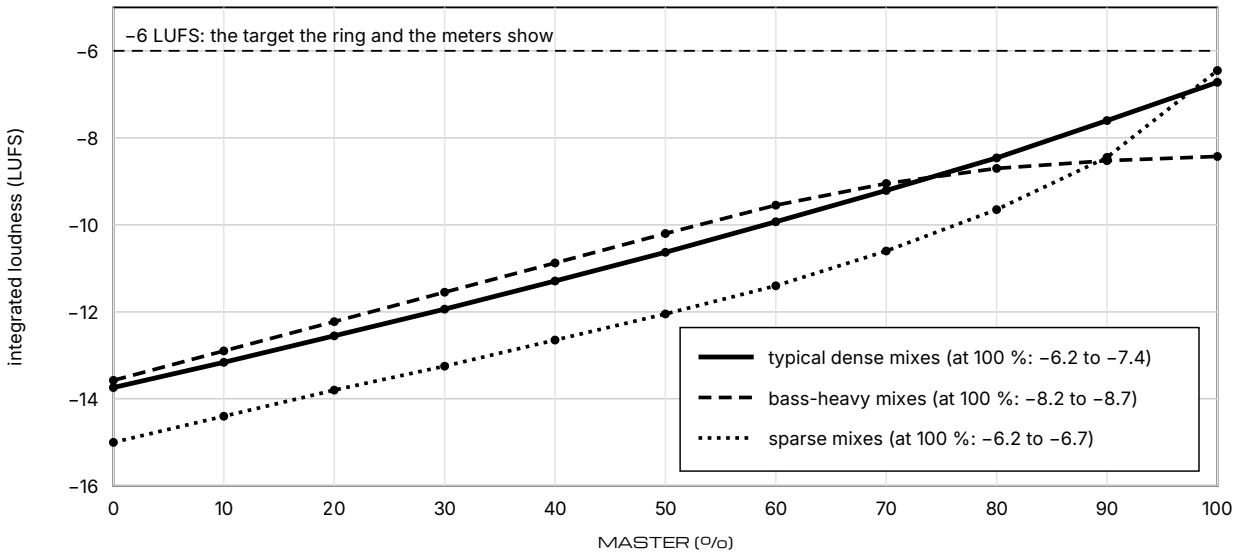
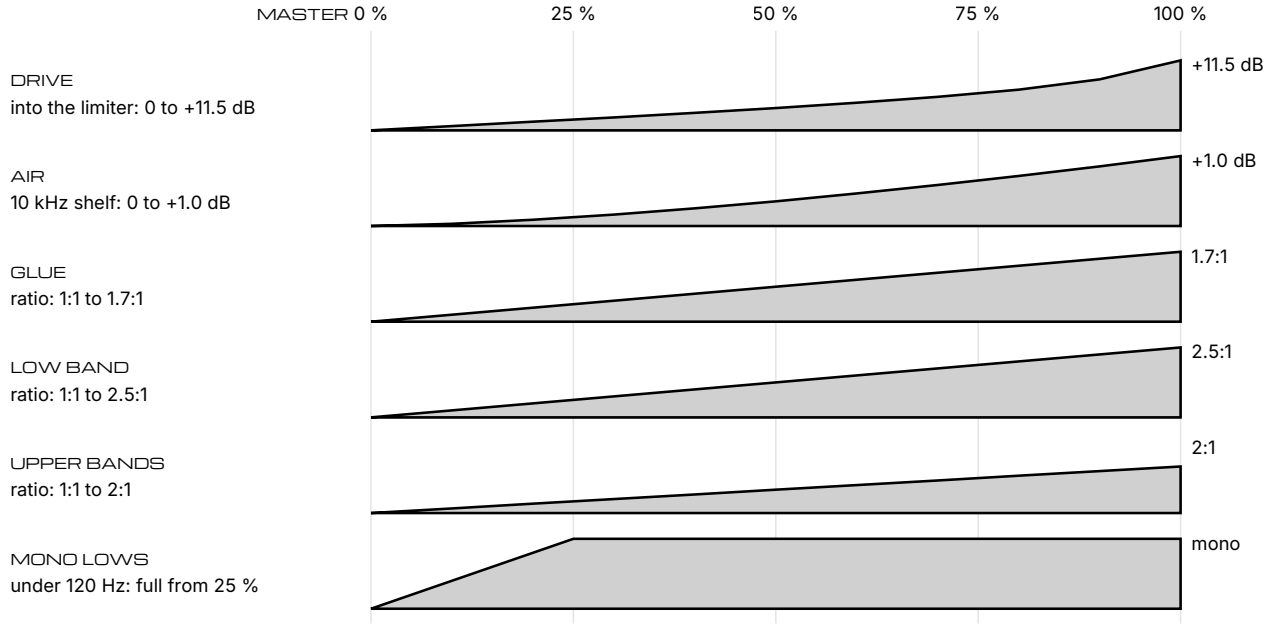


FIGURE 9 Integrated loudness at each MASTER position, on premasters matched to −13 LUFS: the mean of four typical dense mixes, four bass-heavy ones and two sparse ones.

Why a bass-heavy mix stops sooner. A loud, sustained bass wave fills the limiter long before the drums do. The limiter never clips bass waves, because clipped bass is the fuzzy, distorted low end of an over-loud master. So a bass-heavy mix rises evenly up to about 70 % and then holds at its clean limit, about −8.2 to −8.7 LUFS, however far you turn. **Sparse mixes** (a voice with a guitar or a piano) have nothing holding them back and rise faster at the top. Both are the physics of a clean limiter, not something to fix.

What the knob turns behind the scenes

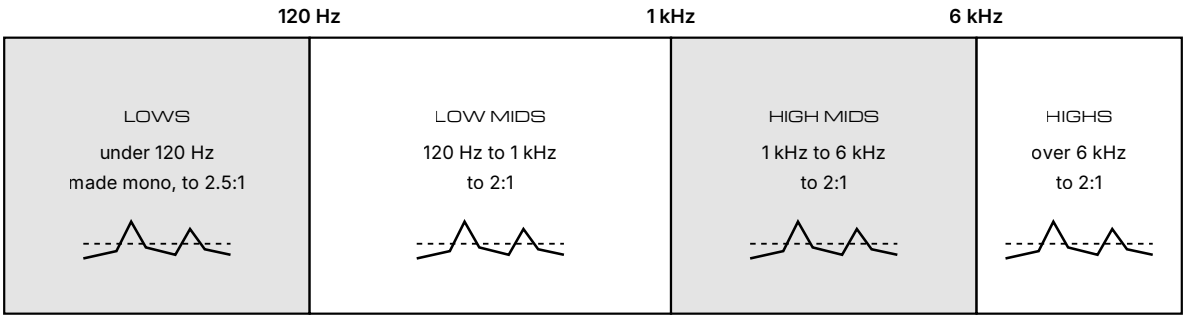


DRIVE follows a measured curve, steeper at the top, so each 10 % adds about the same loudness. The signature EQ and the 20 Hz high-pass don't change with the knob: they are always on.

FIGURE 10 What MASTER sets besides the drive, from 0 to 100 %.

You never set these yourself: MASTER sets them together, so they always suit each other. The air shelf rises slowly at first and more towards the top; the glue and the bands' ratios rise in a straight line; the lows are fully mono from 25 % on.

The four bands



Dashed: each band's own slow level (2 s). Only what rises over it is evened out, and the average is given back, so the song's tone and its quiet and loud sections stay as they were. The crossovers are 24 dB/oct and add no latency.

FIGURE 11 The four bands, their crossovers and what each one does.

Each band has its own gentle compressor. It doesn't compare the band with a fixed threshold but with the band's **own slow level** over the last 2 seconds: only what rises over it (a kick in the lows, a harsh word in the upper mids) is evened out, and most of the band's average reduction is given back. That brings density without changing the tonal balance, and without riding the song's quiet verse up or its loud chorus down. Under 120 Hz the side signal is taken out, so the lows are mono; nothing is ever widened.

The ring and the target

The **ring** of 54 segments around the knob lights with the master's short-term loudness, from −20 LUFS at its start to −2 LUFS at its end. Segments up to the −6 LUFS target light in charcoal; past the target they light in amber (in print, the segments beyond the mark labelled −6). The last segment lights in part, so the ring moves smoothly. The thin arc inside it shows the knob's own position.

The −6 LUFS target is where the top of the knob aims on a dense mix. It isn't a goal for every song: most music sounds better quieter than that, and streaming services turn loud masters down anyway (see *Recipes*).

Input and MATCH

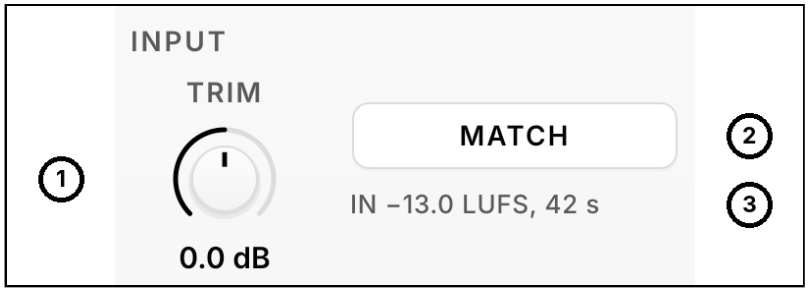
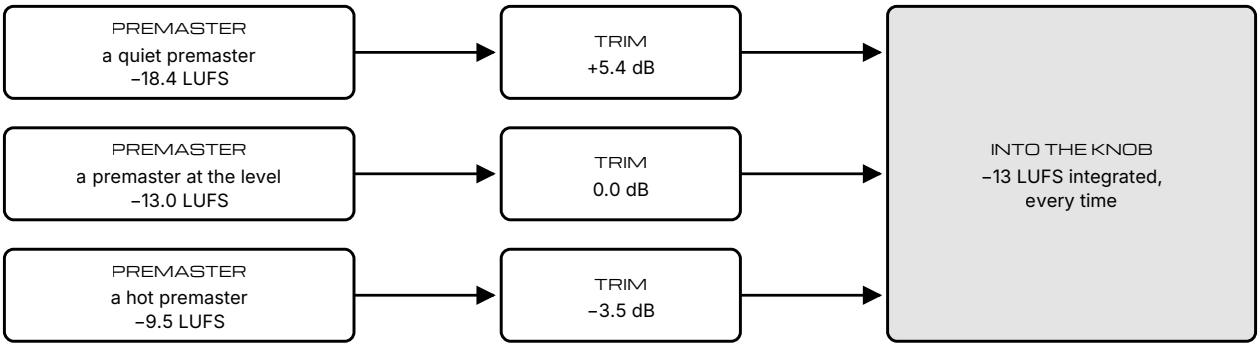


FIGURE 12 INPUT: 1 TRIM, 2 MATCH, and 3 the input's measured loudness and how long it has been measured, here −13.0 LUFS over 42 s.

Control	Range	Default	What it does
TRIM	−12 to +12 dB	0.0 dB	The level into the plugin, before everything else.
MATCH			Sets TRIM once, so this mix comes in at −13 LUFS integrated.

Why the input level matters. MASTER's curve was measured on premasters at about −13 LUFS integrated. A mix that comes in quieter reaches less loudness at the same setting; a mix that comes in much hotter reaches the limiter's clean limit sooner. MATCH puts any mix in the same place, so the knob's positions and the presets' expected loudness mean what they say.



Play the song for at least 10 seconds and press MATCH: TRIM is set once, from the loudness measured, to bring this mix to −13 LUFS, the level MASTER's curve was measured on. TRIM stays where it is until you change it. (The three levels here are examples. TRIM reaches −12 to +12 dB.)

FIGURE 13 MATCH brings quiet and hot premasters to the level the knob was made for.

1. Play the song from a typical part for **10 seconds or more**. The line under MATCH shows the input's integrated loudness and how many seconds it has measured (IN −13.0 LUFS, 42 s). Before anything has played it says IN -- LUFS: play the song, and MATCH is dimmed.
2. When the measured level differs from where TRIM would put it, MATCH shows the change it would make, for example MATCH +5.4 dB, and lights when the difference is 1 dB or more: worth doing.

3. Press MATCH. TRIM moves to −13 LUFS minus the measured loudness (within its −12 to +12 dB range). The input is measured before TRIM, so pressing it again changes nothing.

- MATCH **is a button, not an automatic process.** It sets TRIM once and leaves it. The master then depends only on the mix and your settings, never on where playback started.
- **To measure another song or another section**, restart the meters (click the LOUDNESS read-out, or *Restart the loudness meters* under SETTINGS): the input measurement restarts with them.
- TRIM **belongs to the song**, not to a preset: loading a preset never changes it.

> **Tip:** Measure the loudest typical section, a chorus for example, rather than an intro. Ten seconds of the chorus is enough; the whole song is better.

Output

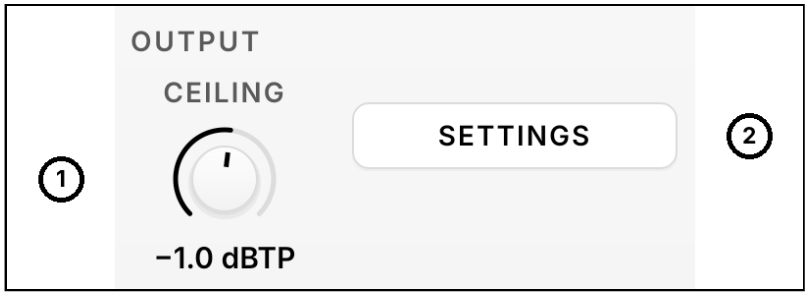


FIGURE 14 OUTPUT: 1 CEILING, here −1.0 dBTP, and 2 SETTINGS.

Control	Range	Default	What it does
CEILING	−2.0 to −0.1 dBTP	−1.0 dBTP	The highest the master may go, in true peak.
Dither (in SETTINGS)	Off, 16-bit, 24-bit	Off	TPDF dither after the limiter, for a bounce at that bit depth.

CEILING

CEILING is the output ceiling: the master's highest true peak. The limiter is set to it and cannot go over, even between the samples. The Master Knob was tested for 90 one-minute runs at ceilings of −2.0, −1.0 and −0.1 dBTP, at 50 and 100 %, and with every mix 6 dB too hot: it stayed under the ceiling every time.

- **−1.0 dBTP** (the default) suits every streaming service.
- **−2.0 dBTP** leaves room for lossy encoders (MP3, AAC, Opus) at low bit rates, whose decoded peaks can rise above the file's. *Codec Safe* uses it.
- **−0.3 dBTP** and above suit a CD or a file that won't be encoded again. *CD Master 16-Bit* uses −0.3 dBTP.

A lower ceiling makes the master a little quieter at the same setting: *Codec Safe* (60 %, −2.0 dBTP) reaches about −10.1 LUFS, *Streaming Loud* (60 %, −1.0 dBTP) about −9.7 LUFS.

SETTINGS

Click SETTINGS for a menu:

- **Dither:** *Off*, *16-bit TPDF (for a 16-bit bounce)* or *24-bit TPDF (for a 24-bit bounce)*. Dither adds a tiny, even noise (one least significant bit, TPDF) after the limiter and inside the ceiling, so the quietest details fade smoothly instead of breaking up when the bounce is shortened to that bit depth. Turn it on only for the final bounce at that depth, and only once in the whole chain. While it is on, the key reads DITHER 16-BIT or DITHER 24-BIT.
- **Restart the loudness meters:** clears the integrated loudness, the true-peak maximum, the history and the input measurement.

Bypass listen

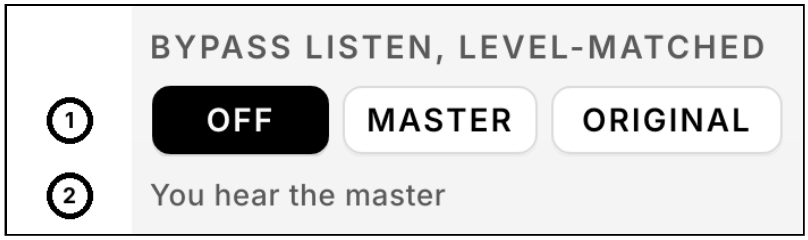


FIGURE 15 BYPASS LISTEN, LEVEL-MATCHED: 1 OFF (chosen), MASTER and ORIGINAL; 2 what you hear.

A louder version of a song almost always sounds better at first, so comparing a master with its mix by ear is unfair to the mix. BYPASS LISTEN makes the comparison fair without turning anything up.

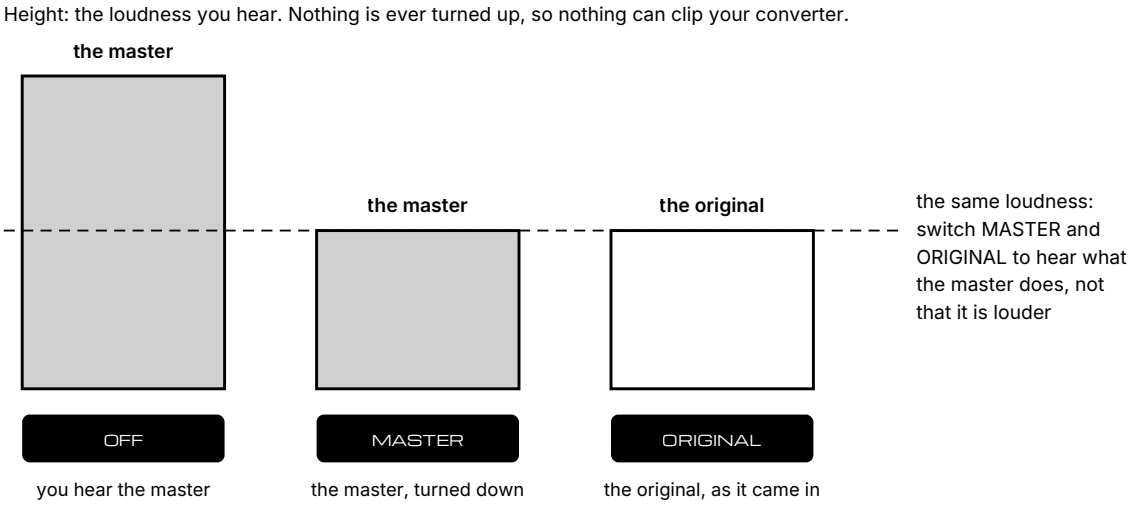


FIGURE 16 The three listening states.

Key	You hear	The line under the keys
OFF	The master.	You hear the master
MASTER	The master, turned down to the original's loudness.	The master, matched: -6.3 dB (how far it is turned down)
ORIGINAL	The original, as it came in, at its own loudness and in time with the master (aligned with the latency).	The original, as it came in

- **Switch between MASTER and ORIGINAL** to hear what the master does to the tone and the dynamics, at the same loudness. The switch crossfades over 20 ms, so there is no click.
- **Nothing is ever turned up.** Raising the original to the master's loudness would push its peaks several dB over full scale and clip your converter. Turning the master down instead keeps both clean.

- **Go back to** OFF when you're done. BYPASS LISTEN is never active in an offline bounce: a bounce is always the master, whatever the keys show. It is saved with the session, never with a preset.
- **Your DAW's own bypass** is in time too: the plugin delays the bypassed signal by exactly its latency.

The meters

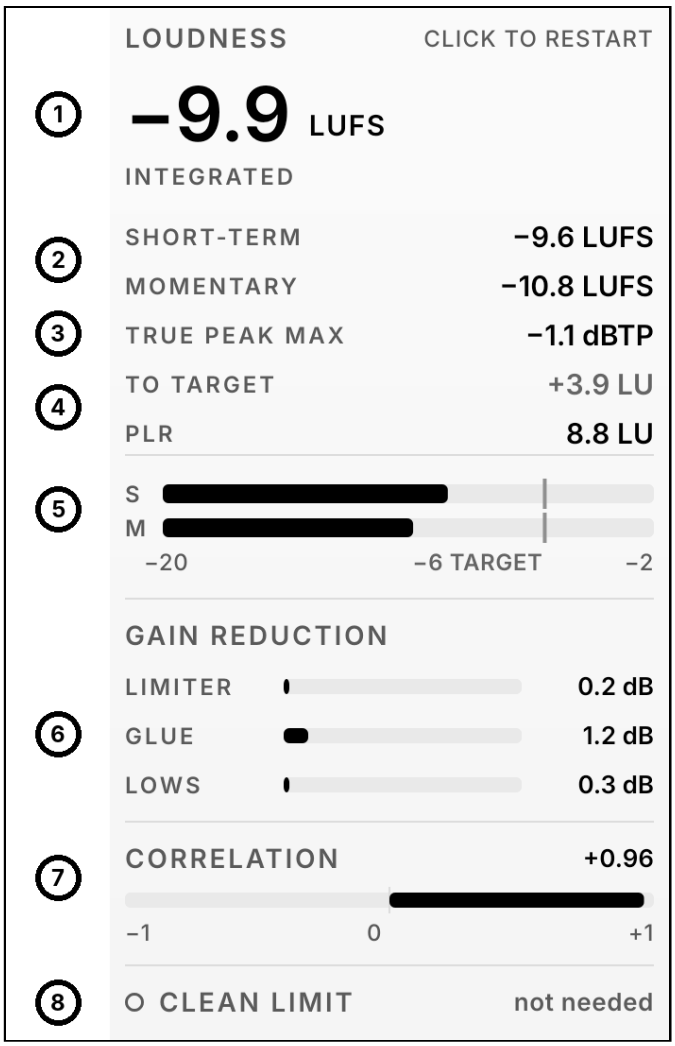


FIGURE 17 The meters: 1 the integrated loudness, 2 short-term and momentary, 3 the true-peak maximum, 4 to target and PLR, 5 the short-term and momentary bars against the −6 LUFS target, 6 gain reduction, 7 correlation and 8 CLEAN LIMIT.

The meters always show **the master**, whatever BYPASS LISTEN plays. Loudness is measured as ITU-R BS.1770-4 describes.

Read-out	What it shows
LUFS INTEGRATED	The master's loudness since the meters were last restarted, in large figures. Click it to restart.
SHORT-TERM	The last 3 seconds.
MOMENTARY	The last 0.4 seconds.

Read-out	What it shows
TRUE PEAK MAX	The highest true peak since the restart, in dBTP. It sits just under CEILING.
TO TARGET	How far the integrated loudness is from −6 LUFS, in LU (+3.9 LU: 3.9 LU under it).
PLR	The peak-to-loudness ratio: the true-peak maximum minus the integrated loudness. Lower means denser.
S and M bars	Short-term and momentary loudness from −20 to −2 LUFS, the −6 LUFS target marked. The part past it is amber (in print, right of the mark).
GAIN REDUCTION	LIMITER, GLUE and LOWS (the lowest band's compressor), in dB, each as a bar and a number.
CORRELATION	−1 to +1: +1 is mono, 0 unrelated channels, below 0 channels out of phase.
CLEAN LIMIT	not needed, or lit with the amount it is holding the drive back, for example DRIVE -2.4 dB.

CLEAN LIMIT

When MASTER asks for more than the music can take cleanly, the limiter works harder and harder. The Master Knob watches its **average** reduction over about 1.5 seconds; when that passes 5.5 dB (a premaster far too hot, or the top of the knob on a very dense mix), the drive backs off, slowly (at most 1.5 dB a second), and CLEAN LIMIT lights with the amount. The song then stays as loud as it can be without the limiting being heard.

If it lights often, the input is probably hot: play the song and press MATCH.

LOUDNESS HISTORY

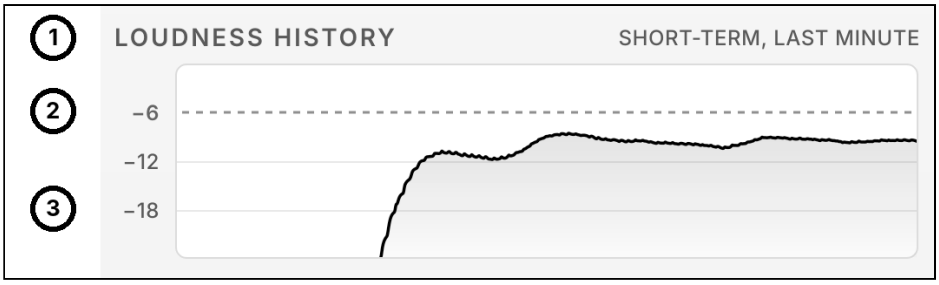
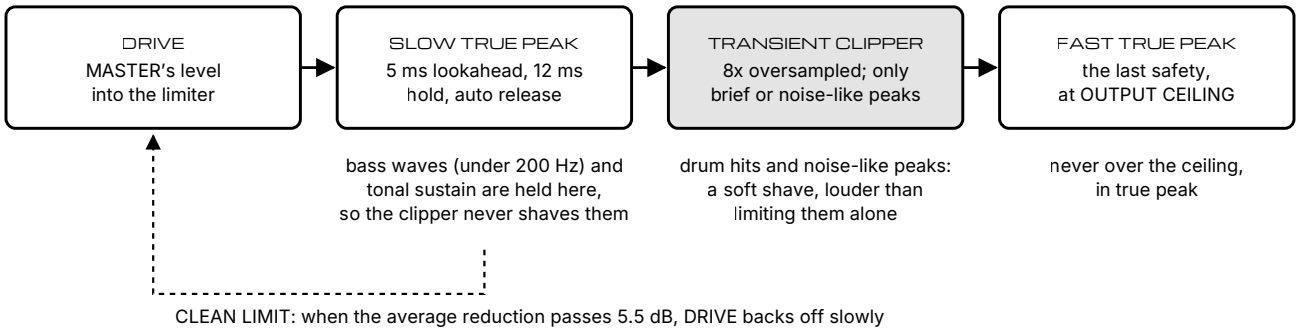


FIGURE 18 LOUDNESS HISTORY: 1 the title (short-term, the last minute), 2 the −6 LUFS target, dashed, and 3 the master's short-term loudness, here rising as the song came in.

The history draws the master's short-term loudness over the last minute, ten points a second, with the −6 LUFS target dashed across it and a scale at −6, −12 and −18 LUFS. Use it to see the song's shape: a chorus that sits steadily near the line, a verse a few LU under it. It clears when you restart the meters.

Inside the limiter



The limiter is the engine of VEIRA Limiter White, with a slightly larger true-peak margin. Its latency, 782 samples at 48 kHz, is the same at every setting and is reported to your DAW.

FIGURE 19 The limiter's three stages, and the clean guard.

The limiter is the engine of VEIRA Limiter White, set to CEILING:

- a **slow true-peak stage** with 5 ms of lookahead and a 12 ms hold, so bass waves can't ripple the gain, and an automatic release. It takes care of the bass (under 200 Hz) and of tonal, sustained material;
- a **transient clipper**, oversampled 8 times, that softly shaves only what is brief (drum hits) or noise-like. On typical mixes it is what lets the master pass −10 LUFS at all, and it is cleaner than limiting alone at the same loudness; it also halves the pumping of a steady bass under hard snare hits;
- a **fast true-peak stage**, the last safety at the ceiling.

Measured at 100 %: distortion of a 50 Hz sine at most 0.02 %, of 1 and 10 kHz sines 0.000 %; intermodulation (60 Hz + 7 kHz) 0.03 %; aliasing at least 86 dB under the tone. One extreme case is measurable: two tones at 19 and 20 kHz, 6 dB under full scale, 17 dB over the ceiling, produce a 10.9 % product at 18 and 21 kHz. Music doesn't carry that much level up there, and the products are at the edge of hearing.

The signature EQ

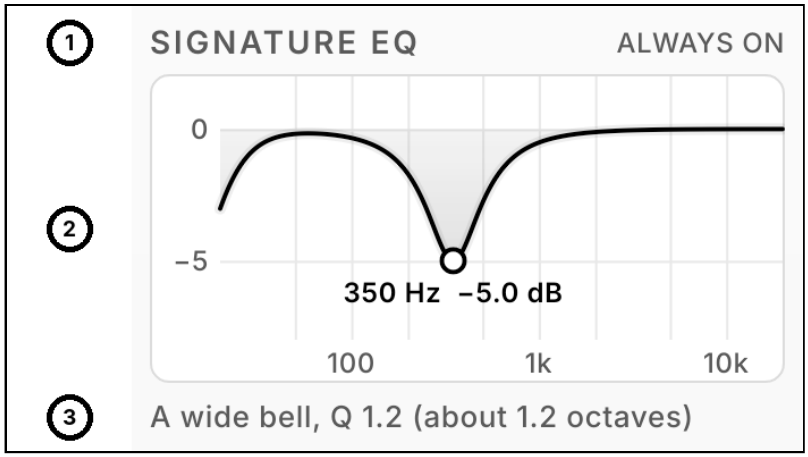


FIGURE 20 SIGNATURE EQ: 1 the title and ALWAYS ON; 2 the curve, its point at 350 Hz, −5.0 dB; 3 the bell's width.

The signature EQ is The Master Knob's own sound, and it is the same at every setting:

- **A bell at 350 Hz, exactly −5.0 dB** at its centre, at every sample rate. Q 1.2 makes it wide: 1.17 octaves between the points where it cuts half as much (−2.5 dB), roughly from 235 to 525 Hz.
- **A 20 Hz high-pass** (2nd order) for DC and rumble.

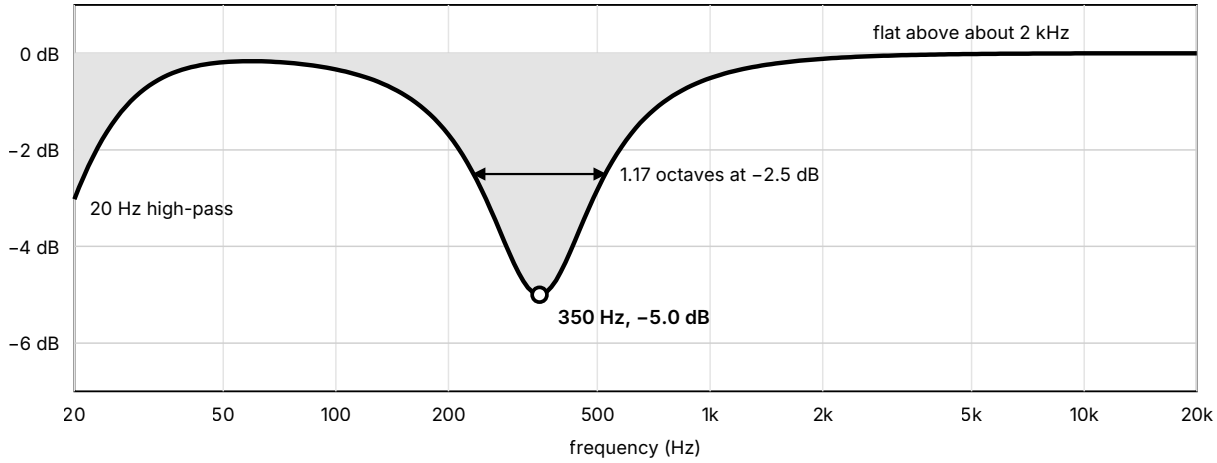


FIGURE 21 The signature tone: the 350 Hz cut and the 20 Hz high-pass together, drawn from their filters.

The 350 Hz region is where a dense mix often collects a boxy, cardboard build-up from guitars, keys, the body of the voice and the room. Taking 5 dB out there lets the kick and bass below it and the voice's presence above it come forward, and leaves the limiter more room. The panel draws the curve from the filters' own maths, so what you see is what it does.

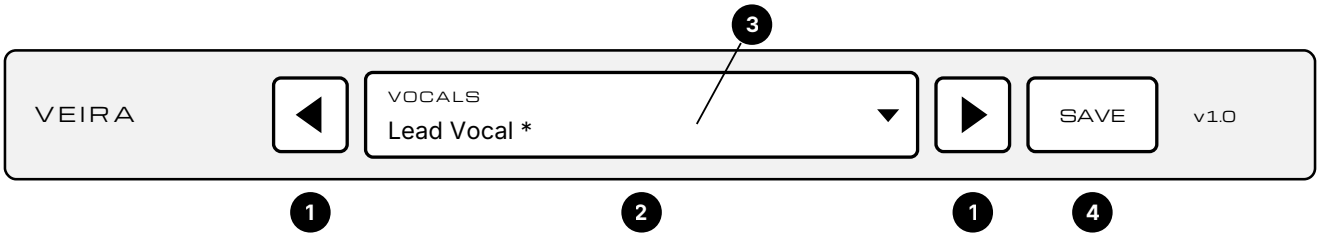
> **Tip:** If a mix already sounds thin around 300 to 400 Hz, it was probably mixed with a similar cut. Give that region back in the mix before The Master Knob, rather than after it.

Presets

The Master Knob comes with **21 factory presets** in 5 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 22 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 The Master Knob 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/The Master Knob/<Folder>/
Windows	%APPDATA%\VEIRA\The Master Knob\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

A preset sets MASTER, CEILING and dither. It never changes TRIM (that belongs to the song: use MATCH) or BYPASS LISTEN.

Folder	Presets
Default	Init (50 %), Signature Only (0 %), Quick Master (70 %), Full Push (100 %)
Streaming	Streaming Natural (10 %), Streaming Plus (30 %), Streaming Loud (60 %), Codec Safe (60 %, −2.0 dBTP)
Loud	Loud (80 %), Louder (90 %), Maximum Clean (100 %), CD Master 16-Bit (85 %, −0.3 dBTP, 16-bit dither)
Genres	Pop (85 %), Rock (80 %), Hip-Hop (90 %), Electronic (100 %), Acoustic (40 %)
Gentle	Light Polish (20 %), Dynamic Master (35 %), Singer-Songwriter (30 %), Jazz and Classical (10 %)

Every other preset uses a −1.0 dBTP ceiling with dither off.

> **Levels:** each preset's note gives the loudness it reaches on a typical dense premaster at −13 LUFS, from −13.7 LUFS (*Signature Only*) to −6.7 LUFS (*Full Push*, *Maximum Clean*, *Electronic*). Those figures hold only when the mix comes in at −13 LUFS, so press MATCH first. A bass-heavy mix stops sooner, at about −8.2 LUFS, and a sparse one is quieter in the middle of the knob.

Recipes

A master in one minute

1. Put The Master Knob last on the master bus, or on the bounced stereo mix.
2. Play the chorus for ten seconds and press [MATCH].
3. Load *Default* ▸ *Quick Master* (70 %), or turn [MASTER] until the song sounds as loud as you want. Switch [BYPASS LISTEN] between [MASTER] and [ORIGINAL] to check the tone, then back to [OFF], and bounce.

For streaming

1. [MATCH] the input.
2. Load *Streaming* ▸ *Streaming Natural* (10 %) or *Streaming Plus* (30 %). Services that play every song at about −14 LUFS turn louder masters down, so the extra loudness of the top of the knob buys nothing there, and the dynamics you keep are heard.
3. Keep [CEILING] at −1.0 dBTP. For low bit-rate encodes, use *Codec Safe* (−2.0 dBTP).

As loud as it goes, cleanly

1. [MATCH] the input, then load *Loud* ▸ *Maximum Clean* or turn [MASTER] to 100 %.
2. Watch [CLEAN LIMIT]. If it lights, the music is at its clean limit: more drive would only be heard as distortion.
3. If the song stops at about −8 LUFS, it is bass-heavy: that is its clean limit. Turning the bass down a little in the mix lets it go louder.

A CD or a 16-bit file

1. [MATCH] the input and load *Loud* ▸ *CD Master 16-Bit* (85 %, −0.3 dBTP, 16-bit TPDF dither).
2. Bounce at 16 bits, with no other dither in the chain.

Gentle mastering for acoustic music

1. Load *Gentle* ▸ *Singer-Songwriter* (30 %) or *Jazz and Classical* (10 %).
2. Listen to [MASTER] and [ORIGINAL] in [BYPASS LISTEN]: the difference should be the signature tone, a little glue and a safe ceiling, with the playing's dynamics kept.

Checking a master before it goes out

1. Play the whole song with the meters restarted at the start.
2. Read [LUFS INTEGRATED] and [TRUE PEAK MAX] at the end: the loudness, and a peak just under [CEILING].
3. Look at [LOUDNESS HISTORY] and [CORRELATION]: steady sections near where you want them, and a correlation that doesn't go below 0 for long.

Specifications

Type	Mastering processor: one knob for loudness, density and tone
Channels	Mono and stereo
Controls	MASTER 0 to 100 % (default 50 %); INPUT TRIM −12 to +12 dB (default 0.0 dB) with MATCH (to −13 LUFS integrated, after 10 s or more); OUTPUT CEILING −2.0 to −0.1 dBTP (default −1.0); BYPASS LISTEN Off, Master, Original (level-matched, never in an offline bounce); DITHER Off, 16-bit, 24-bit TPDF
Signature EQ	Bell at 350 Hz, −5.0 dB, Q 1.2 (1.17 octaves at −2.5 dB); 2nd-order high-pass at 20 Hz; always on
Behind the knob	Air shelf at 10 kHz (0 to +1.0 dB); glue compressor (1:1 to 1.7:1, 30 ms attack, automatic release, 8 dB knee); four bands at 120 Hz, 1 kHz and 6 kHz (24 dB/oct, to 2.5:1 in the lows and 2:1 above), lows mono under 120 Hz from 25 %; drive 0 to +11.5 dB into a true-peak limiter with an 8x transient clipper; clean guard over 5.5 dB of average reduction
Loudness	Premasters at −13 LUFS: about −13.7 LUFS at 0 %, −10.6 at 50 %; at 100 %, −6.2 to −7.4 LUFS on typical dense mixes, about −8.2 to −8.7 on bass-heavy ones
True peak	Never over the ceiling (measured with an independent 16x reading and a BS.1770-4 meter)
Distortion at 100 %	THD 0.02 % (50 Hz), 0.000 % (1 and 10 kHz); SMPTE IMD 0.03 %; aliasing at least 86 dB under
Latency	782 samples at 48 kHz (16.3 ms; 740 at 44.1 kHz, 1310 at 96 kHz), constant, reported to the host
Metering	Integrated, short-term and momentary loudness (BS.1770-4), true-peak maximum, to target, PLR, short-term and momentary bars, loudness history (one minute), gain reduction (limiter, glue, lows), correlation, clean limit
Presets	21 factory presets in 5 folders, plus your own
Window	1120 × 720 points at 100 %; 75 to 200 % or Fit to screen, from the size button, the corner grip or Cmd/Ctrl + = - 0; opens at 100 %, saved with the session and remembered for new instances
Formats	VST3, Audio Units, standalone; AAX once signed
Plugin ID	Manufacturer Veir, plugin Vmkn

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*. Don't bounce a master until it is activated: the silences are in the bounce too.

My master doesn't get as loud as the presets say. The presets' figures are for a typical dense mix coming in at −13 LUFS. Play the song for ten seconds and press MATCH. If it still stops at about −8 LUFS, the mix is bass-heavy: that is its clean limit, and The Master Knob won't clip the bass to pass it.

CLEAN LIMIT is lit. The limiter's average reduction passed 5.5 dB, so the drive is being held back to keep the master clean. Usually the input is too hot: press MATCH. At the top of the knob on a very dense mix, it simply means you've reached as loud as that mix goes cleanly.

It sounds thinner than my mix. That is the signature cut at 350 Hz, always on. Use BYPASS LISTEN to compare at the same loudness. If the mix was already lean in the low mids, give some back in the mix.

MATCH is dimmed. It needs at least 10 seconds of the song. Play it; the line under MATCH counts the seconds. After restarting the meters, it measures again from the start.

My bounce sounds different from what I heard. BYPASS LISTEN doesn't act in an offline bounce: you hear MASTER or ORIGINAL while playing, but the bounce is always the master. Set it to OFF to hear what you will bounce.

My DAW shows latency, or the master is late. The Master Knob reports its 782 samples (at 48 kHz) to your DAW, which compensates for them. It is fixed at every setting, so there is no reason to switch it in and out while recording; if you track through the master bus, bypass it or use your DAW's low-latency mode.

The peaks go over the ceiling after the bounce. Something after The Master Knob is changing the level, or a lossy encoder is adding overshoot. Make it the last plugin, and use −2.0 dBTP (*Codec Safe*) for MP3, AAC or Opus.

How much CPU does it use? More than a simple limiter: most of it is the limiter's oversampling. It is meant for the master bus, one instance per song.

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



The Master Knob · User Manual · Version 0.1.0

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

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