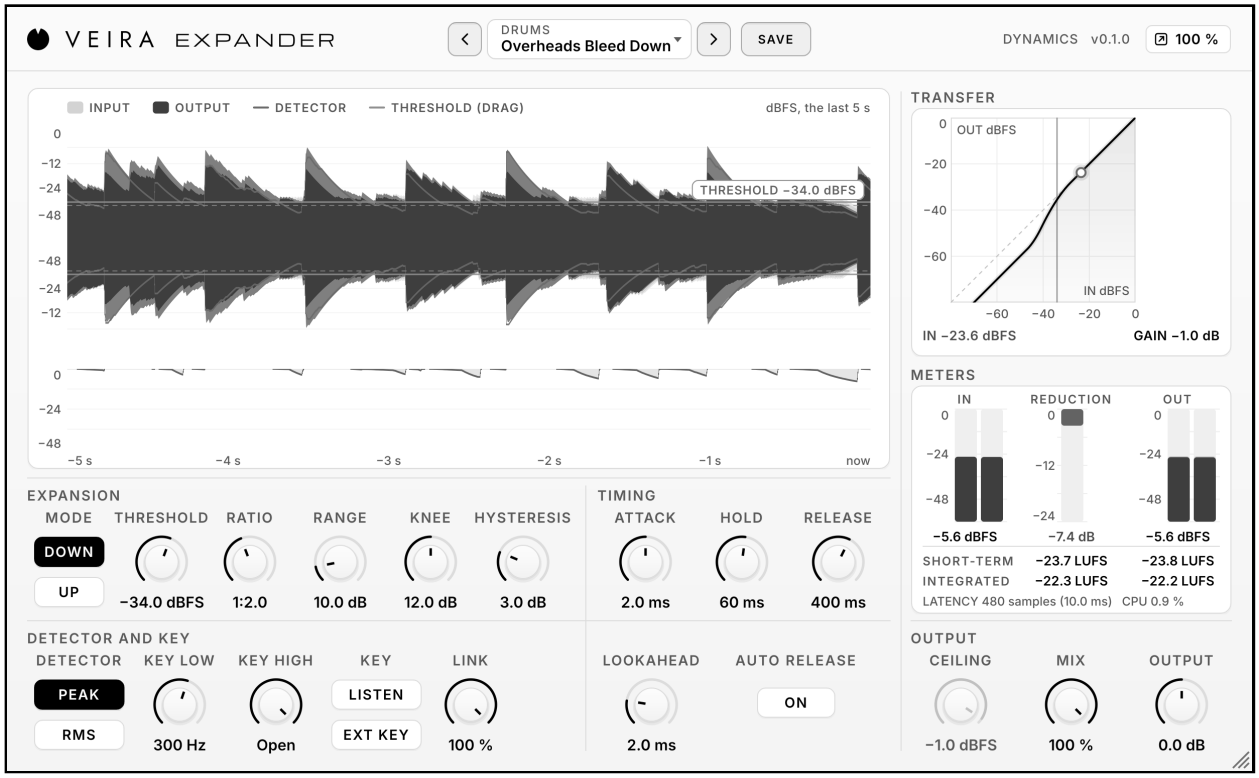
VEIRA

EXPANDER

VEIRA Expander

User Manual

Downward expansion that turns bleed, hum and room noise down between the notes, gently or all the way to a gate, and never chatters; upward expansion that gives squashed material its punch back under a ceiling. You set it by eye, dragging the threshold on a scrolling waveform.



Contents

Welcome 4
Getting started 5
What you need 5
Install with VEIRA Manager 5
Activation and the licence 5
Formats and where the files go 6
The panel at a glance 7
Using the controls 8
How an expander works 10
Quieter under the line 10
Expander or gate? 10
Louder over the line 11
What happens inside VEIRA Expander 11
EXPANSION 12
MODE 12
THRESHOLD 13
RATIO and RANGE 13
KNEE 14
HYSTERESIS 14
TIMING 16
ATTACK and LOOKAHEAD 17
HOLD 17
RELEASE and AUTO RELEASE 18
DETECTOR AND KEY 19
PEAK or RMS 19
KEY LOW and KEY HIGH 19
LISTEN 20
EXT KEY 20
LINK 20
OUTPUT 21
MIX 21
OUTPUT 21
The displays 23
The waveform 23
TRANSFER 24
METERS 25
Upward expansion 26
The CEILING 27
A key from another track 28
Presets 29
The preset browser 29
The preset menu 29
Saving your own presets 29
Presets in your DAW 30
The factory folders 30
Recipes 31
Clean up a noisy track in a minute 31
Tighten a kick or a snare 31
Toms that ring, and nothing in between 31

Hum and hiss between the notes 31
A podcast or voice-over without the room 31
Give a squashed drum bus its punch back 31
Pump a pad from the kick 32
Specifications 33
Troubleshooting and questions 34

Welcome

Thank you for choosing **VEIRA Expander**. An expander looks after the quiet parts of a sound. In its usual form, **downward expansion**, it turns down whatever falls under a level you choose: the spill of other instruments between the drum hits, the hum of an amplifier between the notes, the room and the computer's fan between the sentences. The notes themselves pass untouched.

VEIRA Expander does that with the smoothness of an expander rather than the hard edge of a gate. It can work gently, so the noise only sinks, or go all the way to a gate. And it has a second mode, **upward expansion**, which works on the loud parts instead: it lifts the hits of a drum bus or a mix that was compressed too hard, so they stand out again.

What makes it different

- **More musical than a gate.** Gentle ratios such as 1:1.5, a KNEE up to 24 dB and a floor (RANGE) let the noise sink as far as you want and no further. Turn RATIO to the end and it becomes a gate.
- **It never chatters.** HYSTERESIS and HOLD keep it open while a note fades, so a sound hovering at the threshold can't flutter open and shut.
- **It never misses an attack.** LOOKAHEAD reads up to 10 ms ahead, so the expander is fully open when a hit arrives. The latency is always the same, 10 ms, whatever you set.
- **You set it by eye.** A scrolling waveform shows the last five seconds, before and after, with the threshold as a line you drag between the noise and the notes.
- **Upward expansion with a ceiling.** UP restores punch, up to 24 dB above the threshold, and no boosted peak ever passes the CEILING.
- **Nothing changes until it has to.** When it isn't turning anything down or up, the output is the input, bit for bit.
- **55 factory presets** in 11 folders, each measured on material that suits it.

How this manual is organised. *Getting started* installs and activates the plugin. *The panel at a glance* names its parts. *How an expander works* explains the idea and what happens inside. *EXPANSION*, *TIMING*, *DETECTOR AND KEY* and *OUTPUT* go through the controls, *The displays* through the waveform, the transfer curve and the meters. *Upward expansion* and *A key from another track* cover the second mode and the sidechain. *Presets*, *Recipes*, *Specifications* and *Troubleshooting* close the manual.

Getting started

What you need

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

Install with VEIRA Manager

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

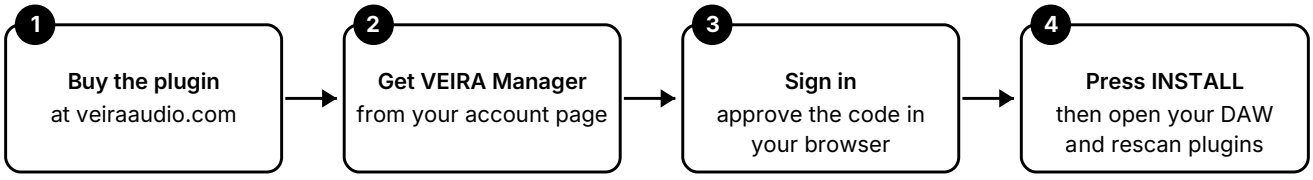


FIGURE 1 From purchase to first sound in four steps.

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

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 Expander 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.

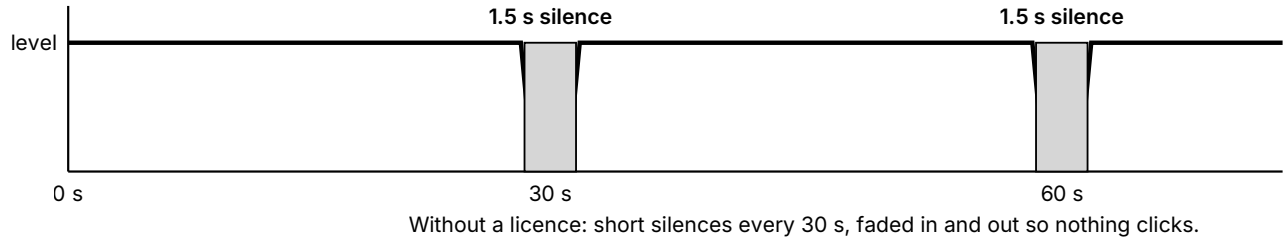


FIGURE 2 What an unlicensed copy does. With a valid licence the audio is never touched.

- **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 Expander. 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 Expander 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

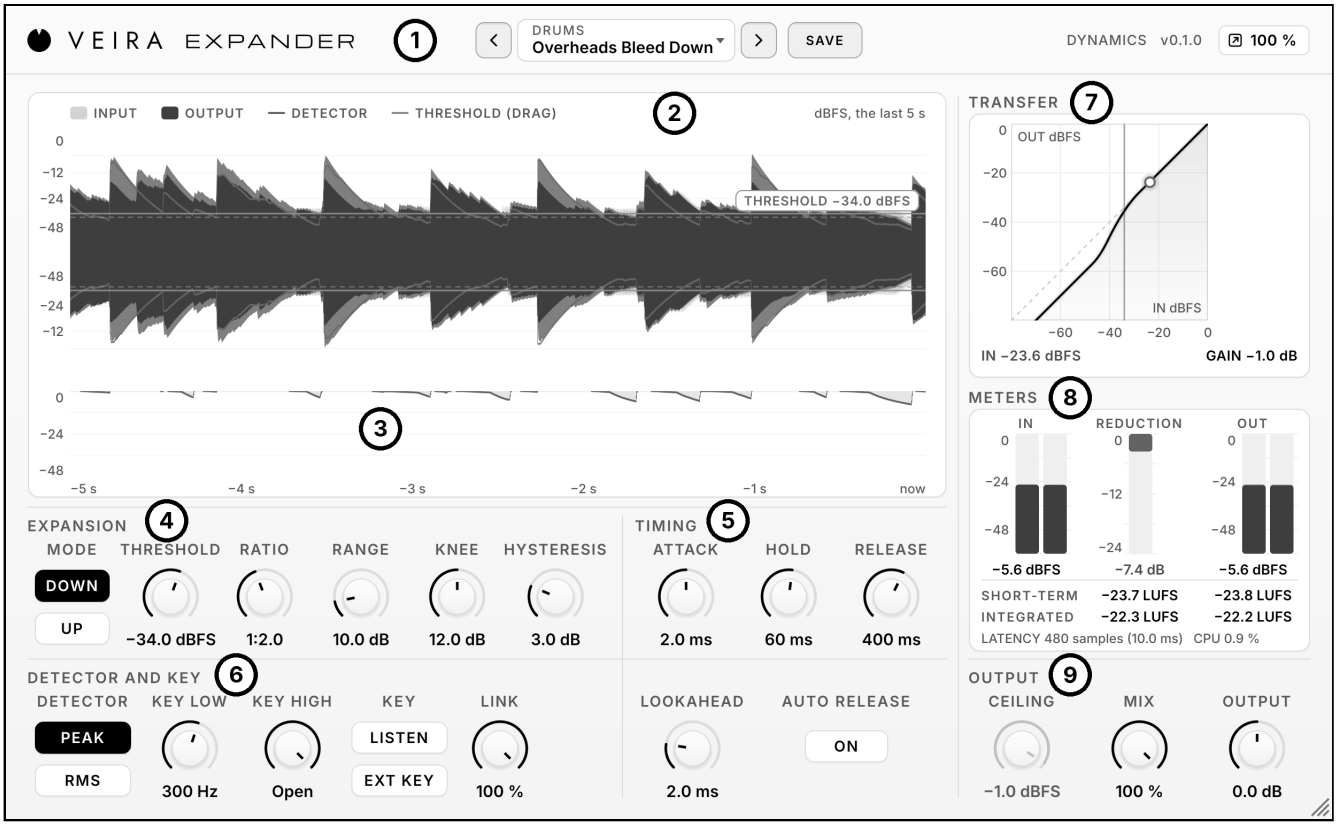


FIGURE 3 VEIRA Expander with the preset *Overheads Bleed Down* on drum overheads with an amplifier's spill: 1 the header, 2 the waveform, 3 the gain lane, 4 EXPANSION, 5 TIMING, 6 DETECTOR AND KEY, 7 TRANSFER, 8 METERS and 9 OUTPUT.

	Part	What it does
1	Header	The VEIRA logo and the name, the preset browser, SAVE, what it is and the version, and the size button.
2	Waveform	The last five seconds, in and out, with the detector's level and the threshold you drag.
3	Gain lane	How far the expander turns down (or up) moment by moment, on the same time line.
4	EXPANSION	MODE (DOWN or UP), THRESHOLD, RATIO, RANGE, KNEE and HYSTERESIS: how much it turns down, and where.
5	TIMING	ATTACK, HOLD and RELEASE, with LOOKAHEAD and AUTO RELEASE under them: how fast it moves.
6	DETECTOR AND KEY	What it listens to: PEAK or RMS, the key filters, LISTEN, EXT KEY and LINK.
7	TRANSFER	The curve: what comes out for each level that goes in, with a dot where the sound is now.

	Part	What it does
8	METERS	Levels in and out, the reduction (or boost), loudness, the latency and the processor load.
9	OUTPUT	CEILING (for UP), MIX and OUTPUT.

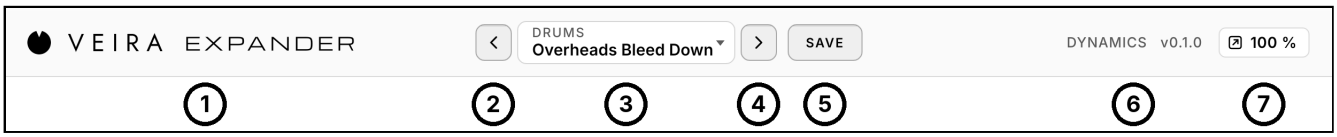


FIGURE 4 The header: 1 the VEIRA logo and the name, 2 and 4 the previous and next preset, 3 the preset's folder and name (an asterisk: changed since it loaded), 5 SAVE, 6 what it is and the version, and 7 the size button, here at 100 %.

Using the controls

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

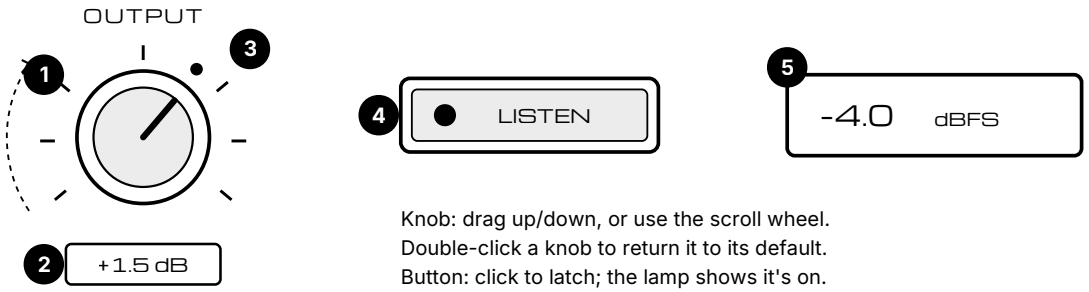


FIGURE 5 The parts you'll find on every VEIRA panel (the labels are examples).

- 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 VEIRA Expander'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.

- **Knobs are white discs** with a charcoal arc that shows the setting, and the value printed under them. Drag up and down or use the wheel; double-click for the default; right-click (Control-click on a Mac) to type a value. You can type gate into RATIO, and off or open into the key filters.
- **Keys** are flat, rounded and white. The one that is on is filled charcoal with white letters, like DOWN and PEAK in the picture above.
- **Dimmed controls** don't apply in the current mode: HOLD and HYSTERESIS in UP, CEILING in DOWN. They keep their settings for when you switch back.
- **Colours on the displays:** light grey is the input, charcoal the output, teal the detector, amber the threshold; red is reduction and green is boost. In print, the input is the lighter shape behind the output, and the threshold is the long straight line across the waveform with its label at the right.
- **Tooltips** explain every control: hover over it.
- **The window size.** VEIRA Expander opens at 100 %, 1240 × 760 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*; 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 an expander works

If you already know what downward and upward expansion do, skip to *What happens inside VEIRA Expander*. If not, these pages make every control in the plugin clear.

Quieter under the line

Every recording has sound you didn't want in it. A tom microphone hears the snare and the cymbals. A guitar amplifier hums. A voice-over booth has its own quiet room tone. While the wanted sound plays, it covers all of that. Between the notes, in the pauses, you hear it.

An expander listens to the level of the sound and compares it with a **threshold**. While the level is over the threshold, it does nothing. When it falls under it, the expander turns the sound down: the further under, the more it turns down. So the notes pass as they were, and what lies between them sinks.

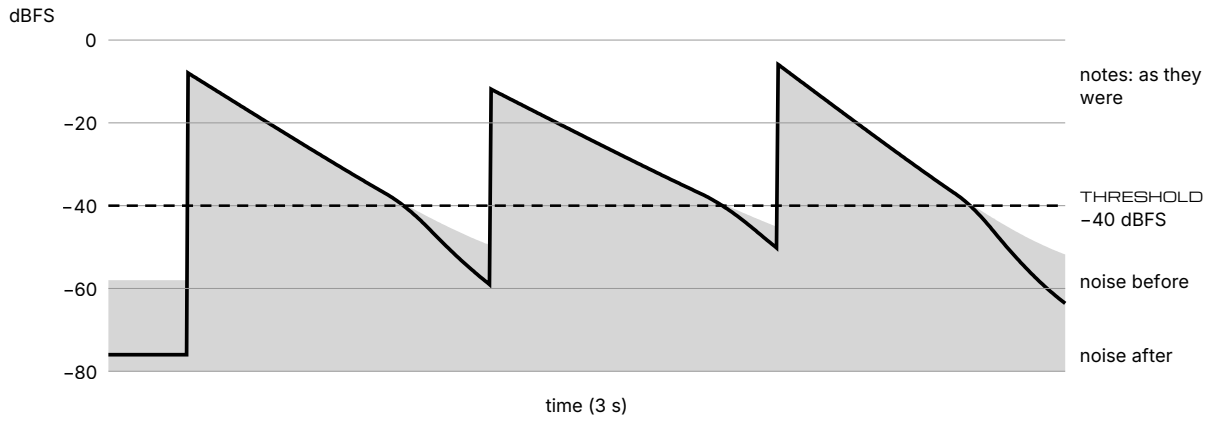


FIGURE 6 Three notes over a noise floor at −58 dBFS, before (grey) and after (black) downward expansion at 1:2 with the threshold at −40 dBFS. The notes are untouched; the noise between them sinks 18 dB. The expander's own movements (attack, hold, release) are left out of this drawing.

How much it turns down is set by the **ratio**. At 1:2, every dB the sound falls under the threshold becomes 2 dB: noise 18 dB under the threshold comes out 36 dB under it. At 1:4, it becomes 72 dB under. And the **range** sets the most it may ever turn down, so the noise can sink by, say, 12 dB and no more.

Expander or gate?

A **gate** is an expander pushed to the extreme: under the threshold it simply shuts, all the way to its range. It is clean and decisive, and on drums it is often what you want. On anything that fades, such as a piano note, a cymbal, a sung line or a room, the shut can be heard: the tail is cut, or the noise switches on and off with the notes.

A gentle expander turns the noise down *gradually*, so a fading note sinks smoothly into a lower floor. You hear less noise, but you don't hear the expander. VEIRA Expander does both: RATIO goes from 1:1 (nothing) through soft settings like 1:1.5 and 1:2 to steep ones like 1:8 and 1:16, and on to GATE (the knob then reads Gate).

Louder over the line

Upward expansion turns the idea around. It leaves everything **under** the threshold alone, and makes what goes **over** it louder: at 1:2, a hit 3 dB over the threshold comes out 6 dB over it. That is the opposite of a compressor. Where a compressor took the punch out of a drum bus or a mix, upward expansion gives some of it back. Because it makes peaks higher, VEIRA Expander puts a CEILING on it. See *Upward expansion*.

What happens inside VEIRA Expander

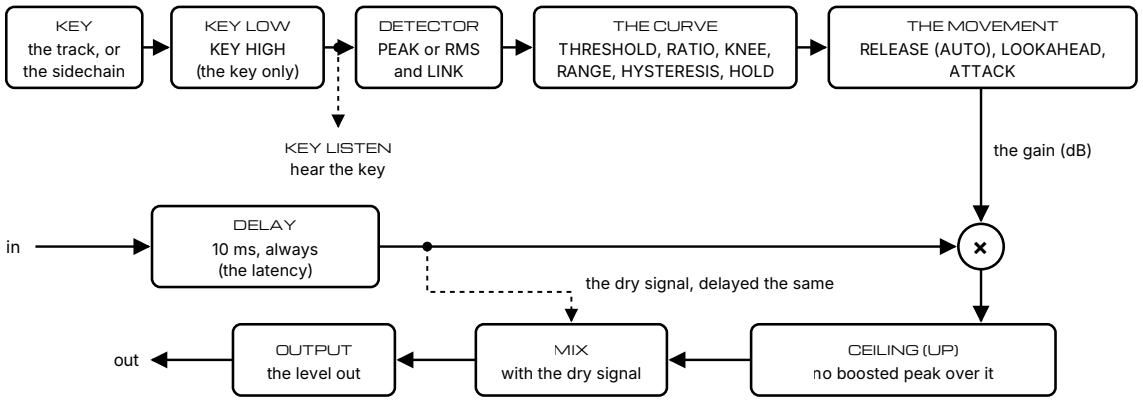


FIGURE 7 The path through the plugin. Above: how the gain is worked out from the key. Below: the audio, delayed 10 ms, multiplied by that gain.

1. **The key** is what the expander listens to: the track itself, or, with EXT KEY, another track on the sidechain input.
2. KEY LOW **and** KEY HIGH filter the key, so a kick's lows or a hi-hat's highs don't open the expander. They never filter what you hear.
3. **The detector** measures the key's level, as PEAK or RMS. LINK decides whether the two channels of a stereo track share one gain.
4. **The curve** turns that level into a gain, from THRESHOLD, RATIO, KNEE and RANGE; HYSTERESIS and HOLD keep it open while a note fades.
5. **The movement:** RELEASE (with AUTO RELEASE) sets how fast the gain falls, LOOKAHEAD lets it start rising before a hit arrives, and ATTACK sets how fast it rises.
6. **The audio** is delayed by 10 ms, so the expander can look ahead, and multiplied by the gain. In UP, the CEILING keeps every boosted peak in bounds.
7. MIX blends in the dry signal, and OUTPUT sets the level out.

The 10 ms delay. VEIRA Expander always delays the sound by 10 ms: 441 samples at 44.1 kHz, 480 at 48 kHz, 960 at 96 kHz and 1920 at 192 kHz. The delay is the same at every setting, LOOKAHEAD included, and your DAW is told about it and compensates, so the track stays in time with the others. The DAW's own bypass is delayed by the same amount, so switching the plugin in and out never shifts the track. Because of the delay, use it for mixing, not on a track you play or sing through while recording.

When it does nothing, it changes nothing: with the gain at 0 dB, or MIX at 0 %, and OUTPUT at 0.0 dB, the output is the input, delayed, bit for bit.

EXPANSION

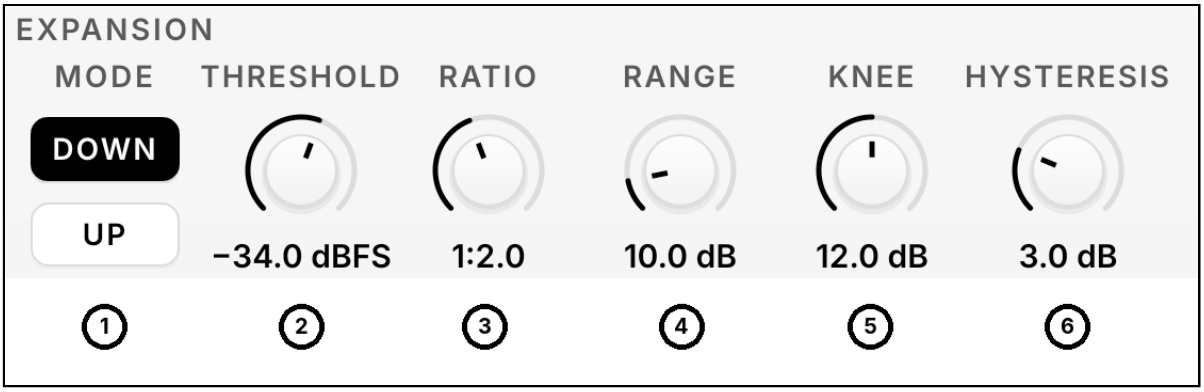


FIGURE 8 EXPANSION: 1 MODE, here DOWN; 2 THRESHOLD; 3 RATIO; 4 RANGE (in UP it reads MAX BOOST); 5 KNEE; 6 HYSTERESIS.

Control	Range	Default	What it does
MODE	DOWN or UP	DOWN	DOWN turns down what falls under the threshold; UP turns up what goes over it.
THRESHOLD	−80.0 to 0.0 dBFS	−40.0 dBFS	The level at which the expander starts to work, measured on the key.
RATIO	1:1 to 1:8, then steeper (1:16, 1:80 …) to GATE	1:2.0	How much faster the level falls under the threshold (DOWN) or rises over it (UP).
RANGE	0.0 to 80.0 dB (80 = Silence)	40.0 dB	DOWN: the most it ever turns down.
MAX BOOST ((RANGE in UP))	up to +24.0 dB		UP: the most it ever turns up.
KNEE	0.0 to 24.0 dB	6.0 dB	How softly the curve bends in at the threshold.
HYSTERESIS	0.0 to 12.0 dB	3.0 dB	DOWN: once open, it stays open until the level falls this far under the threshold.

MODE

DOWN is downward expansion, the classic use: noise, bleed and room between the notes go down. UP is upward expansion: it works over the threshold and adds punch. Everything in this chapter is described for DOWN; *Upward expansion* covers what changes in UP.

THRESHOLD

The threshold is the line between what you want and what you don't. Set it **just over the noise** between the notes and **under the quietest note** you want to keep. That is easiest on the waveform: drag the amber line itself, or click where it should be. See *The displays*.

- It is measured on **the key**, after KEY LOW and KEY HIGH. With the key filters open and EXT KEY off, that is simply the track's level.
- **It depends on your track's level.** The presets assume typical recording levels (see *Presets*). If your track is 6 dB hotter, raise THRESHOLD by 6 dB.
- Double-click the knob (or the waveform) for −40 dBFS.

RATIO and RANGE

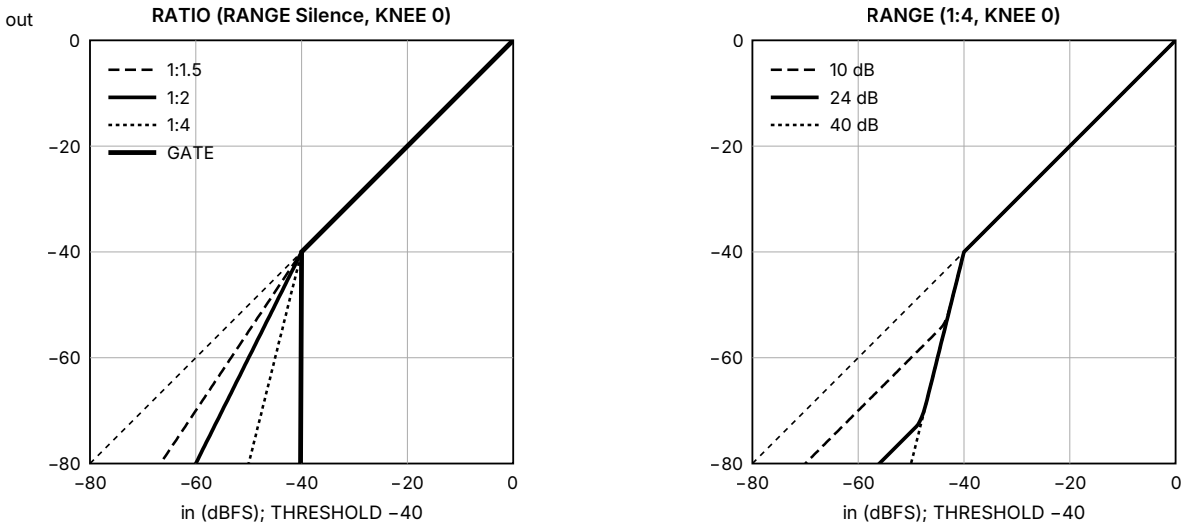


FIGURE 9 What comes out for each steady level that goes in, with the threshold at −40 dBFS. Left: four ratios, with nothing to stop them (RANGE at Silence). Right: RANGE stops the fall at 10, 24 or 40 dB down, with a rounded corner. The dotted diagonal is 'no change'.

RATIO is how fast the level falls once it is under the threshold. At **1:2** every dB under the threshold becomes 2; at **1:4**, 4. Over the threshold, nothing changes at any ratio. Past 1:8 the knob gets steeper quickly, through 1:16 and 1:80, to GATE: shut as soon as the level is under the threshold.

RANGE is the floor: the most the expander ever turns down. It is what makes an expander sound natural. With 10 to 15 dB, noise drops clearly but a little of the room stays, so the track never sounds empty; with 24 to 40 dB the noise is gone in practice; at 80 dB the knob reads Silence and the gaps are true silence. The curve rounds off gently into the floor (over 6 dB), so even a deep fall doesn't land with a bump.

What you want	RATIO	RANGE
Noise only a little lower, never noticed	1:1.3 to 1:2	4 to 12 dB
Noise clearly lower, a little room left	1:2 to 1:3	12 to 24 dB
Bleed gone between drum hits	1:4 to GATE	30 to 50 dB
Silence between the notes	GATE	Silence

> **Tip:** A deep RANGE with a gentle RATIO still sounds gentle: the noise sinks gradually as the note fades. If the expander sounds abrupt, try a softer RATIO before you reduce RANGE.

KNEE

KNEE softens the corner at the threshold. At 0 dB the expander starts turning down the moment the level crosses the threshold; with a knee, it eases in over that many dB, centred on the threshold. A soft knee is what you want for anything that fades slowly (a piano, a cymbal, a voice), a small one for drums.

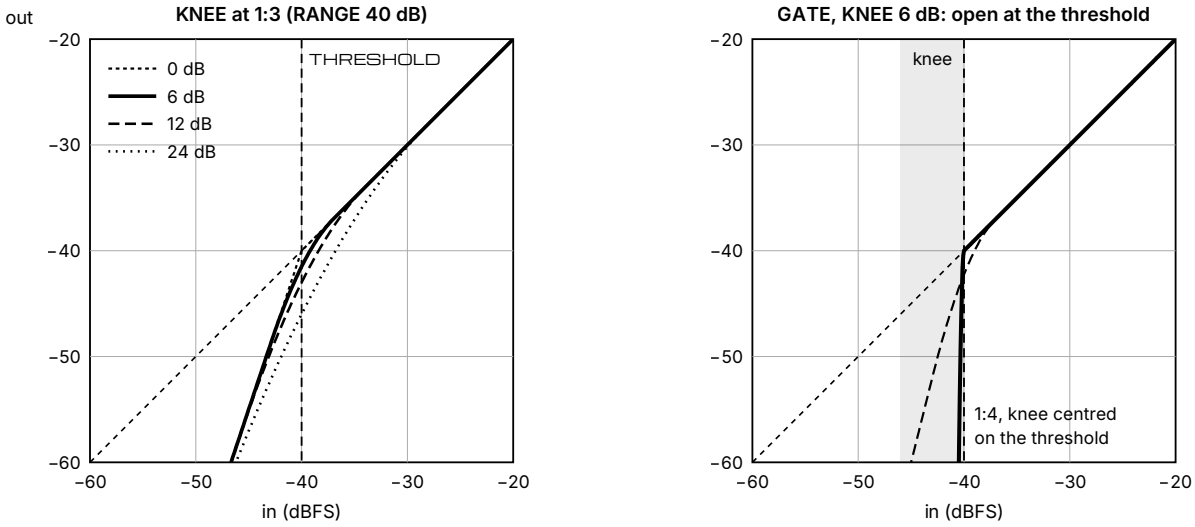


FIGURE 10 Left: the same 1:3 curve with KNEE at 0, 6, 12 and 24 dB, close up around the threshold. Right: GATE with a 6 dB knee. The knee is moved wholly under the threshold, so a gate is fully open at its threshold however soft its edge; the dashed curve (1:4, 6 dB) has its knee centred on the threshold.

A gate stays open at its threshold. Up to 1:8 the knee is centred on the threshold, as usual. From there to GATE it slides down, until at GATE it lies wholly under the threshold. So GATE with a 6 dB knee is fully open at the threshold and shut 2 dB under it, never closed over it.

HYSTERESIS

A note never fades smoothly: its level wobbles. If the threshold sits where a note fades, a plain expander opens and closes with every wobble, and you hear a flutter (*chatter*). HYSTERESIS stops it. Once the level has reached the threshold, the expander stays open until the level falls this many dB **under** the threshold. So it opens at one level and closes at a lower one.

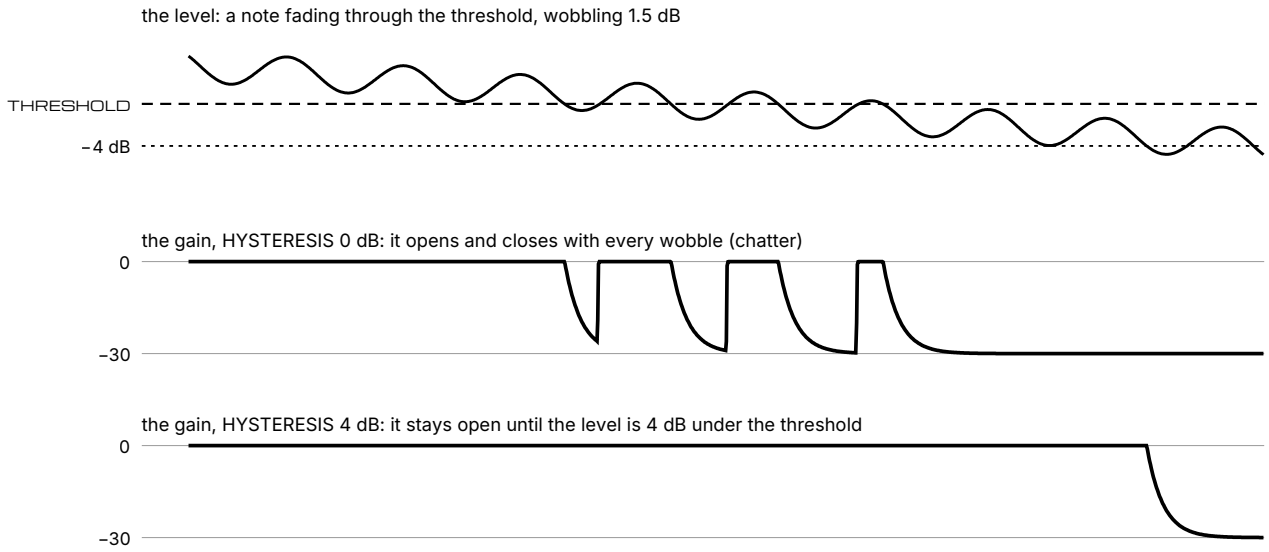


FIGURE 11 A note fading through the threshold, its level wobbling 1.5 dB (top). Without HYSTERESIS the gain opens and closes with every wobble (middle); with 4 dB it opens once and closes once, when the note has really gone (bottom). Computed with the plugin's own gain path: GATE, RANGE 30 dB, ATTACK 1 ms, RELEASE 40 ms.

- 3 to 6 dB suits almost everything; the presets use 3 to 6. More is safer against chatter, but lets more of the tail through.
- On the waveform, a dashed amber line under the threshold shows where the expander will close.
- HYSTERESIS works only in DOWN.

TIMING

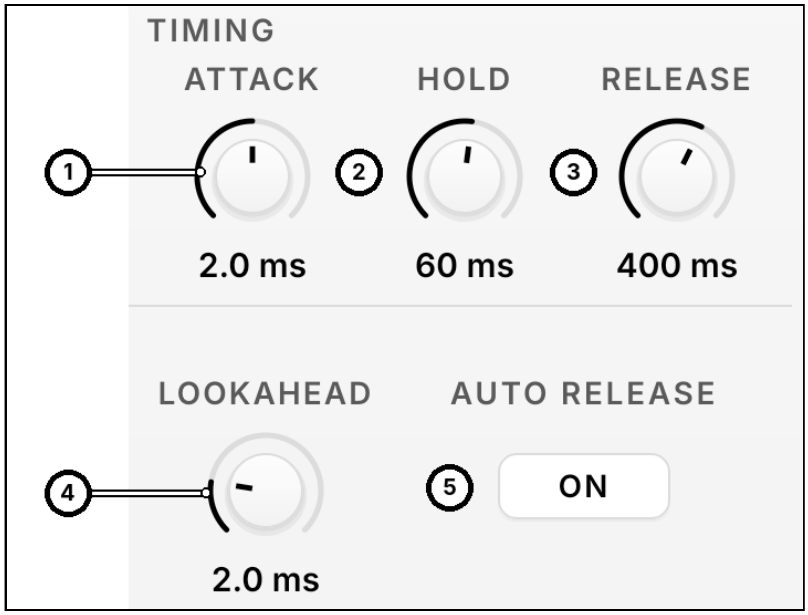


FIGURE 12 TIMING: 1 ATTACK; 2 HOLD; 3 RELEASE; 4 LOOKAHEAD; 5 AUTO RELEASE, here off.

Control	Range	Default	What it does
ATTACK	0.10 to 100 ms	1.0 ms	How fast the expander opens (UP: how fast it boosts).
HOLD	0.00 ms to 500 ms	20 ms	DOWN: how long it stays open after the level has fallen, before it starts to close.
RELEASE	5.0 ms to 3.00 s	150 ms	How fast it closes (UP: lets go): the time to travel 90 % of the way.
LOOKAHEAD	0.0 to 10.0 ms	2.0 ms	How far ahead it reads, so it opens before a hit arrives.
AUTO RELEASE	on or off	off	Makes RELEASE quicker after short sounds and slower after long ones.

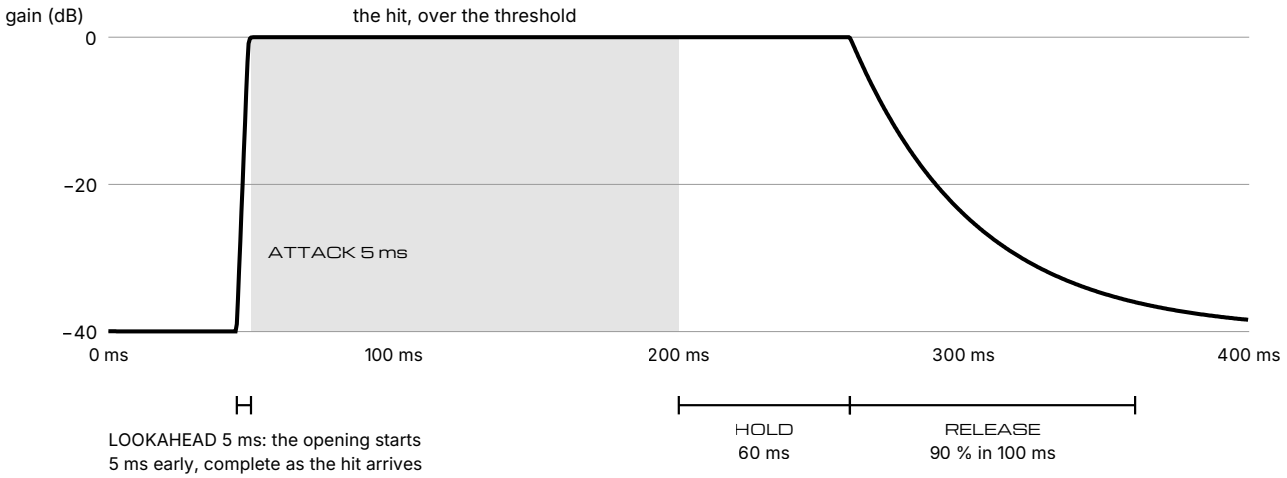


FIGURE 13 The gain around one hit, computed with the plugin's own gain path: GATE, RANGE 40 dB, LOOKAHEAD 5 ms, ATTACK 5 ms, HOLD 60 ms, RELEASE 100 ms. The expander starts to open before the hit, is fully open when it arrives, holds for 60 ms after it and then closes.

ATTACK and LOOKAHEAD

ATTACK is how long the expander takes to open fully, from its floor to 0 dB. The opening is a straight line in dB, so 5 ms means 5 ms whether RANGE is 12 or 40 dB (under 12 dB it opens a little sooner).

An expander that waits to hear a hit before it opens always loses a little of it. LOOKAHEAD fixes that: the expander reads the sound up to 10 ms ahead and starts opening early. **With LOOKAHEAD at least as long as ATTACK, a hit starts fully open**: the first 2 ms of a hit after silence come through within about a hundredth of a dB. With no lookahead, the same 1 ms attack costs about 2.5 dB there.

- **Fast attacks** (0.1 to 1 ms) keep the click of a stick, a pick or a consonant. Keep LOOKAHEAD at 1 to 5 ms with them.
- **Slow attacks** (10 to 100 ms) soften the start of each note. With a long attack and no lookahead, every note swells in: that is the *Swell In* preset.
- LOOKAHEAD works inside the fixed 10 ms delay, so changing it never changes the latency, and it glides, so you can automate it.
- The key filters delay the key a little at low frequencies. A few ms of LOOKAHEAD makes up for it (the kick presets use 5 ms).

HOLD

When the level falls under the threshold (and under HYSTERESIS), HOLD keeps the gain where it was for that long, and only then lets it close. It bridges short gaps, keeps a drum's ring, and stops the expander closing between the quick notes of a phrase.

- 10 to 60 ms for drums and tight parts; 80 to 200 ms for voices, bass and sustained instruments; up to 500 ms for long pauses on a mix or a master.
- With PEAK, the detector itself adds about 15 ms (see *DETECTOR AND KEY*): HOLD at 100 ms closes about 115 ms after a tone stops.

- HOLD works only in DOWN.

RELEASE and AUTO RELEASE

RELEASE is how fast the expander closes once HOLD has passed: the time it takes to travel 90 % of the way to the floor. Short releases (15 to 80 ms) cut sounds off tightly; long ones (300 ms to 1 s and more) let tails fade naturally into the floor.

AUTO RELEASE makes the release follow the music. After a short burst the release is quicker, down to about a third of RELEASE; after a long note or phrase it is slower, up to twice RELEASE. Short hits then close tightly while long notes fade gently, with one setting. With RELEASE at 200 ms: about 84 ms after a 50 ms burst, about 340 ms after three seconds of sound.

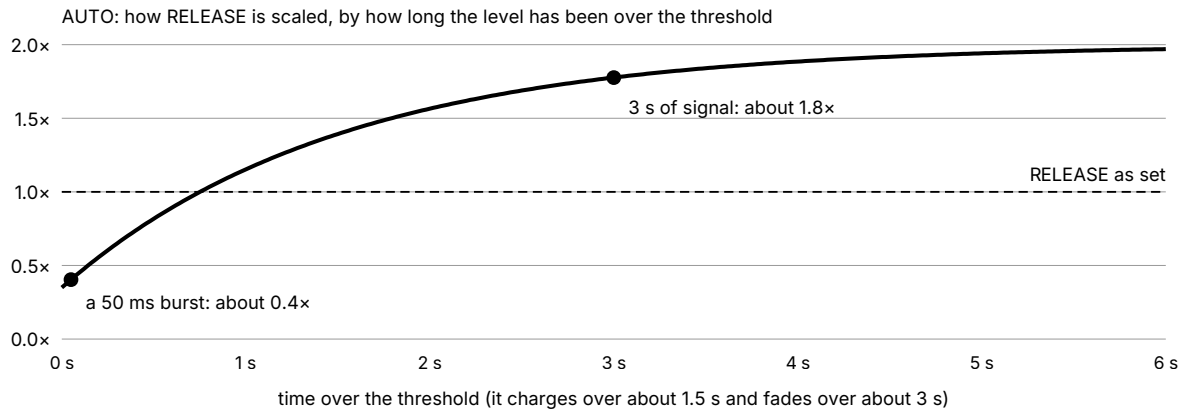


FIGURE 14 How AUTO RELEASE scales RELEASE, from 0.35 times after a short burst to 2 times after a long passage.

At the start of playback the expander begins open, so a note on the very first sample is untouched. If the song starts on noise, its first close takes 10 ms whatever RELEASE says, so a bounce doesn't begin with a slow fade of noise.

DETECTOR AND KEY

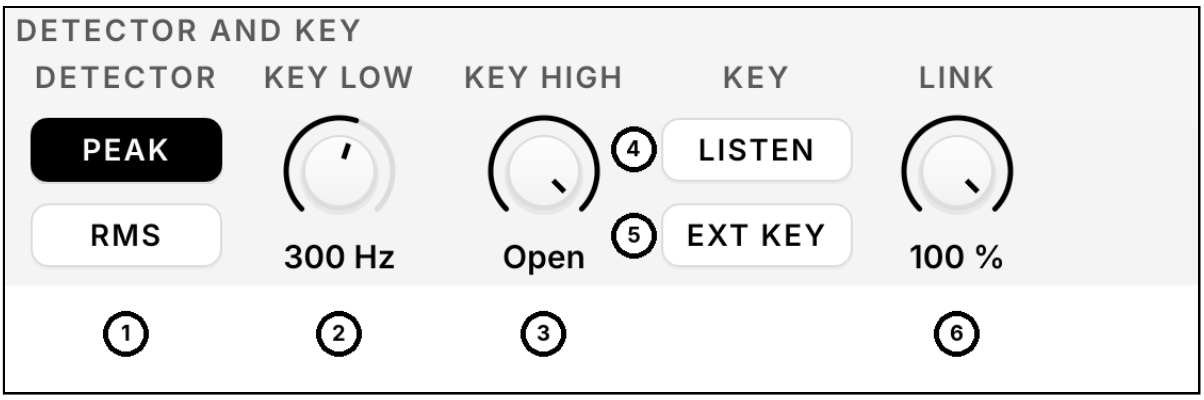


FIGURE 15 DETECTOR AND KEY: 1 PEAK and RMS; 2 KEY LOW, here 300 Hz; 3 KEY HIGH, here Open; 4 LISTEN; 5 EXT KEY; 6 LINK.

Control	Range	Default	What it does
DETECTOR	PEAK or RMS	PEAK	How the level of the key is measured.
KEY LOW	Off (20 Hz) to 2.00 kHz	Off	A high-pass on the key: lows under it can't open the expander.
KEY HIGH	100 Hz to 19.5 kHz (Open)	Open	A low-pass on the key: highs over it can't open the expander.
LISTEN	on or off	off	Plays the key instead of the output, so you hear what the expander listens to.
EXT KEY	on or off	off	Listens to the sidechain input instead of the track.
LINK	0 to 100 %	100 %	How much the two channels of a stereo track share one gain.

PEAK or RMS

- PEAK follows the highest sample of the last 15 ms. It reacts at once, so it is the one for drums and anything percussive, and it can't sag between the cycles of a low note (down to 33 Hz), so a bass doesn't make it flutter.
- RMS follows the average level, smoothed over about 10 ms. It is calmer, and suits voices, pads, mixes and long notes.

A steady tone reads the same level on both, so THRESHOLD means the same thing whichever you choose.

KEY LOW and KEY HIGH

The expander only listens to the key; you always hear the whole sound. The two filters decide what in the key is allowed to open it. Each is steep, 24 dB per octave.

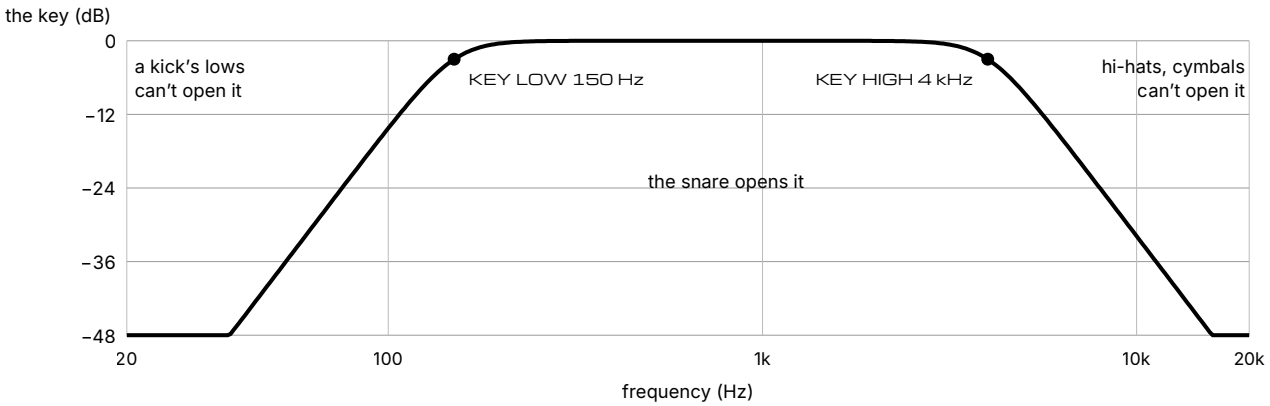


FIGURE 16 KEY LOW at 150 Hz and KEY HIGH at 4 kHz on a snare: the kick's lows and the hi-hat's highs reach the detector 24 dB or more weaker an octave or two away, so only the snare opens it. The snare's own sound is not filtered.

- KEY LOW keeps lows out: a kick in the snare microphone, rumble, an amplifier's hum. 100 to 300 Hz is typical.
- KEY HIGH keeps highs out: hi-hats and cymbals in a tom or kick microphone, hiss. 2.5 to 8 kHz is typical.
- Together they make a band: the snare presets listen between 150 Hz and 4 kHz, the tom preset between 60 Hz and 2.5 kHz.

LISTEN

LISTEN lets you hear the key: what is left after KEY LOW and KEY HIGH, or the sidechain with EXT KEY on. Turn it on, move the filters until the wanted sound stands out and the unwanted one is gone, and turn it off again.

- It switches with a 5 ms crossfade, so it doesn't click.
- **An offline bounce leaves it out**, so you can't bounce the key by mistake. A preset never turns it on.

EXT KEY

With EXT KEY on, the expander listens to the sidechain input instead of the track: another track decides when it opens. See *A key from another track*. With nothing routed to the sidechain, it listens to the track as usual.

LINK

On a stereo track, the expander measures each channel. At LINK 100 % both channels get exactly the same gain, worked out from the louder one, so the stereo image never moves: right for overheads, rooms, stereo instruments and mixes. At 0 % each channel is expanded on its own; in between, each channel's level is blended with the louder one.

> **Tip:** LINK at 0 % is useful when the two channels are really two different sources, such as two interview microphones on one stereo track: each one is turned down while its speaker listens (*Speech ▸ Interview Two Mics*).

OUTPUT

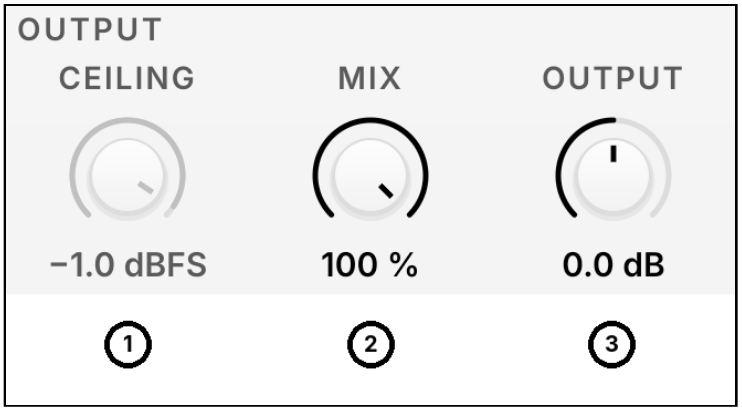


FIGURE 17 OUTPUT: 1 CEILING, dimmed in DOWN; 2 MIX; 3 OUTPUT.

Control	Range	Default	What it does
CEILING	−24.0 to 0.0 dBFS	−1.0 dBFS	UP: no boosted peak of the output goes over it.
MIX	0 to 100 %	100 %	The expanded signal against the dry one (parallel expansion).
OUTPUT	−24.0 to +24.0 dB	0.0 dB	The level out.

MIX

MIX blends the expanded sound with the dry one. At 100 % you hear only the expander's result; lower, the dry signal comes back under it. That is **parallel expansion**, and it is a quick way to make any setting gentler: whatever RANGE says, at 50 % nothing sinks by more than 6 dB.

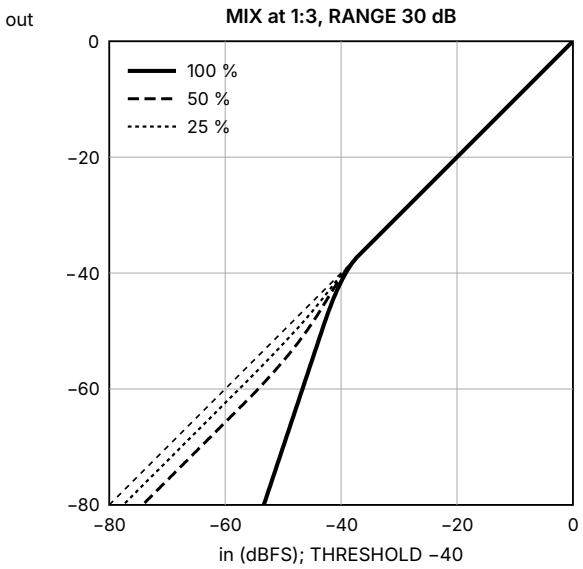


FIGURE 18 The same curve at MIX 100, 50 and 25 % (1:3, RANGE 30 dB, threshold −40 dBFS). Over the threshold the three are the same; under it, 50 % never sinks more than 6 dB and 25 % about 2.4 dB.

OUTPUT

OUTPUT sets the level out, from −24 to +24 dB. In DOWN the notes pass at their own level, so it usually stays at 0.0 dB. In UP the boost raises the level, and a negative OUTPUT brings it back: the Upward presets do this.

CEILING is described in *Upward expansion*. THRESHOLD, RATIO, KNEE, RANGE, MIX and OUTPUT glide to a new value over about 20 ms, so you can automate them, THRESHOLD included, without clicks or zipper noise.

The displays

The waveform

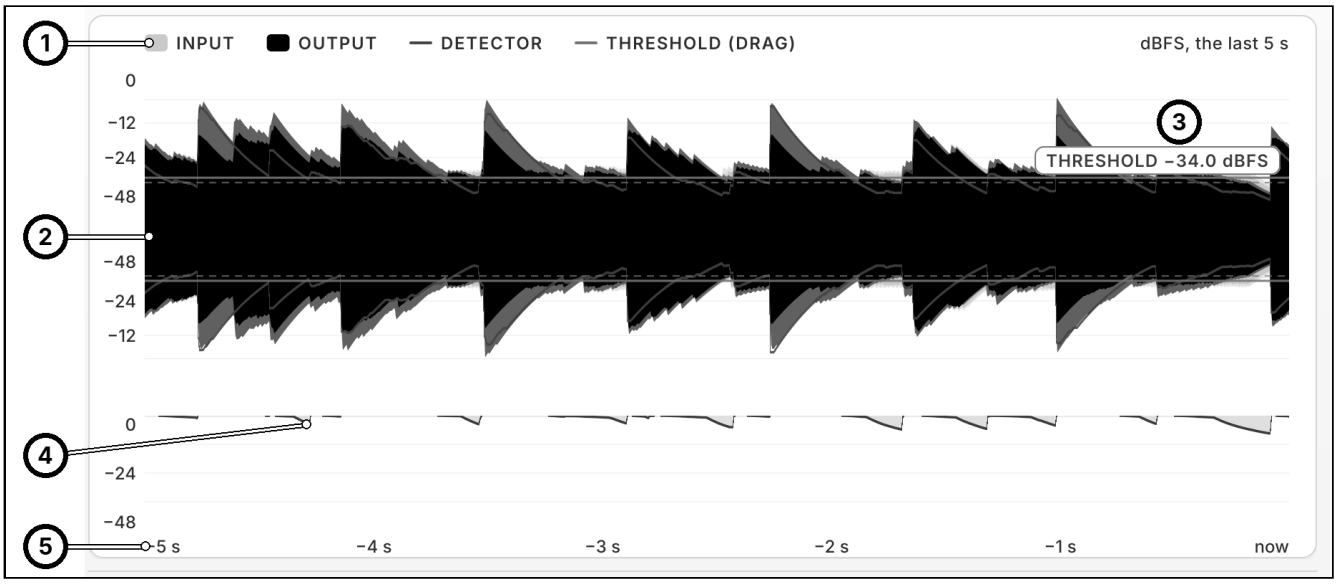


FIGURE 19 The display with *Overheads Bleed Down*: 1 the legend and the scale; 2 the waveform, the input (light grey) behind the output (charcoal), the teal line inside them the detector; 3 the threshold, its label, and the dashed line just under it where HYSTERESIS lets it close; 4 the gain lane, here small dips of reduction between the hits; 5 the time line, the last five seconds.

The waveform shows the last five seconds of sound, newest at the right. It is drawn mirrored around its centre line, like the waveform of a track in your DAW, with the loudest part at the outside.

- **Input and output.** The input is drawn in light grey, the output in charcoal on top of it. Where the expander turns the sound down, the grey input shows around the smaller output: the grey edge is what it removed.
- **The scale** is in dBFS: 0 at the outer edge, then −12, −24 and −48 towards the centre. It is stretched so that hits keep their shape and noise 60 dB down still shows, which is what makes the gaps between notes visible.
- **The detector** (the teal line) is the level the expander measures on the key, after the key filters. Where it is above the threshold line, the expander is open.
- **The threshold** is the amber line, drawn on both halves, with its value in a label at the right (THRESHOLD −34.0 dBFS). In UP, a dashed red line shows the CEILING.
- **Hover** over the waveform to read the level under the pointer in dBFS.

Set the threshold by eye. Drag the amber line, or click where it should be: the threshold jumps there. Double-click for −40 dBFS. Put it **between the noise and the notes**: over the level of the gaps, under the start of the quietest note you want to keep. Then watch the teal line: it should cross the threshold on every note, and stay under it in the gaps.

The gain lane under the waveform shows what the expander does, moment by moment, on the same time line: in DOWN the reduction in red, hanging down from 0 to −48 dB; in UP the boost in green, rising from 0 to +24 dB.

> **Tip:** On dense material, such as overheads with constant cymbals, the waveform stays mostly filled, because there is little silence to show. Watch the gain lane and the grey edge of the waveform instead, and listen.

TRANSFER

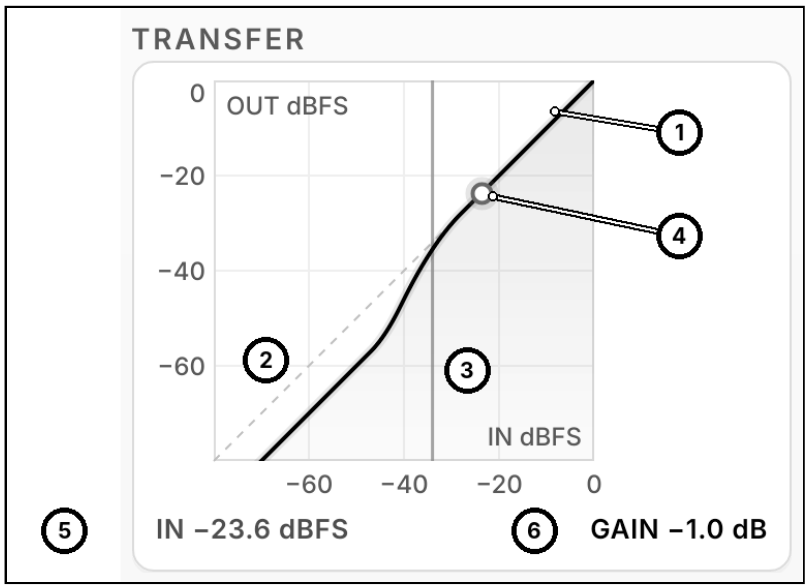


FIGURE 20 TRANSFER: 1 the curve; 2 the dashed diagonal, no change; 3 the threshold; 4 the dot, where the sound is now; 5 IN, the detector's level; 6 GAIN, what the expander does to it.

TRANSFER draws the curve of the settings: across, the level going in, from −80 to 0 dBFS; up, the level coming out. Where the curve lies on the dashed diagonal, nothing changes. Where it drops under it, the expander turns down; in UP, where it rises over it, it turns up. The curve includes KNEE, RANGE, MIX, OUTPUT and, in UP, the CEILING, so it is a quick check of what a knob does.

The **dot** sits at the detector's level now and what comes out of it, and the two read-outs under the plot give the same numbers: IN in dBFS and GAIN in dB.

METERS

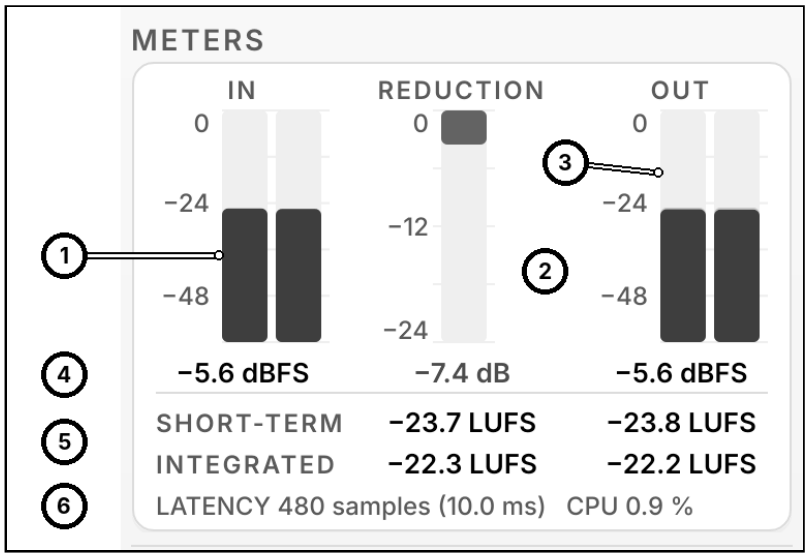


FIGURE 21 METERS: 1 IN; 2 REDUCTION (in UP, BOOST); 3 OUT; 4 the held peaks and the reduction; 5 the loudness, SHORT-TERM and INTEGRATED, in and out; 6 the latency and the processor load.

Read-out	What it shows
IN, OUT	The level of each channel, from 0 down to −60 dBFS: the peak (the lighter bar) and the RMS (the darker bar in front). The number under them is the highest peak, held. A red mark at the top means a peak over 0 dBFS.
REDUCTION	DOWN: how far the expander turns down now, in red, hanging from 0 to −24 dB, and the deepest, held, under it.
BOOST	UP: how far it turns up, in green, rising from 0 to +24 dB.
SHORT-TERM, INTEGRATED	The loudness in and out, in LUFS: over the last 3 seconds, and since you started. Click either row to start the integrated loudness again.
LATENCY, CPU	The delay in samples and ms, and how much of one processor core the plugin uses.

Tip: Compare the INTEGRATED loudness in and out: in DOWN they stay close, because only the quiet parts between the notes change. In UP, use OUTPUT to bring the two close, so you hear the punch and not just more level.

Upward expansion

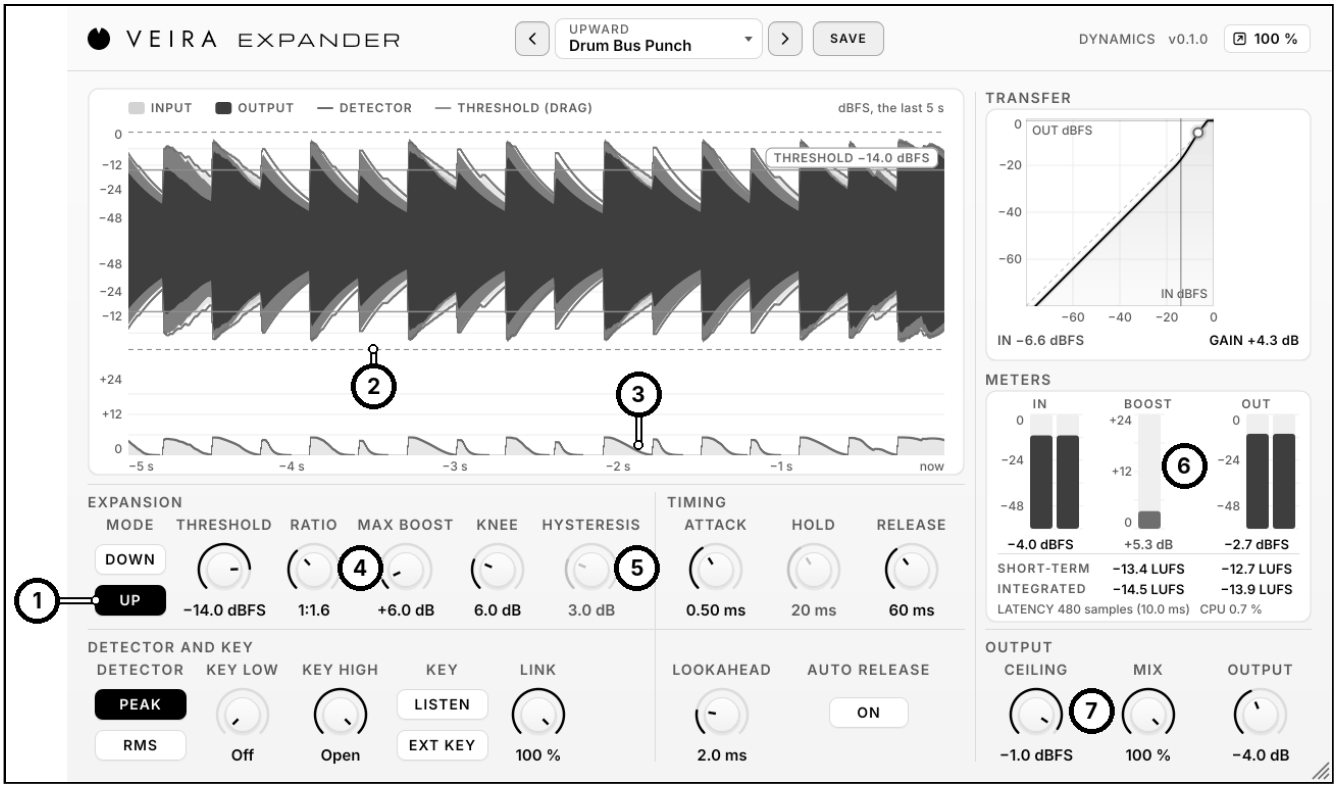
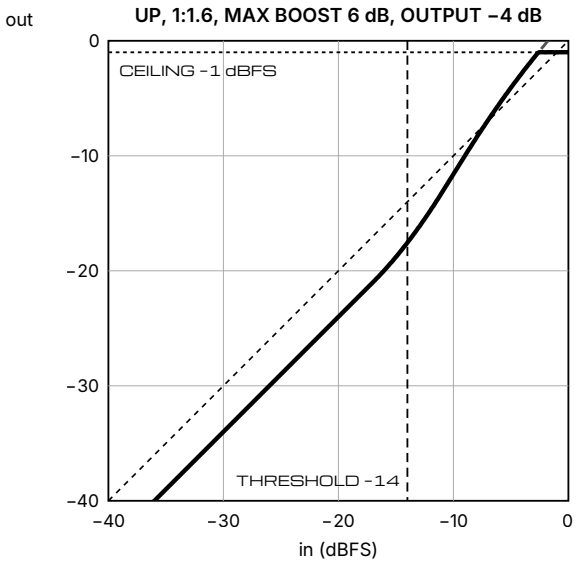


FIGURE 22 VEIRA Expander in UP with *Upward ▸ Drum Bus Punch* on a squashed drum loop: 1 UP; 2 the CEILING on the waveform (dashed); 3 the boost in the gain lane; 4 MAX BOOST; 5 HOLD and HYSTERESIS, dimmed; 6 the BOOST meter; 7 CEILING, now active.

Press UP, and the expander works over the threshold instead of under it. What goes over the threshold comes out louder, (RATIO − 1) dB more for every dB it goes over. A drum bus or a mix that was compressed so hard that its hits barely stand out from the body gets some of its punch back.

What changes in UP:

- THRESHOLD goes **under the hits and over the body**: on a drum bus around −14 to −10 dBFS, a little under the peaks.
- RATIO is gentle here: 1:1.4 to 1:2 is plenty.
- RANGE **becomes** MAX BOOST: the most it ever adds, up to +24 dB. 4 to 9 dB is typical.
- ATTACK is how fast the boost rises, RELEASE how fast it lets go. A fast attack (0.2 to 1 ms) lifts the very start of each hit; a release of 30 to 120 ms decides how much of the hit's body comes up with it.
- HOLD **and** HYSTERESIS don't apply, and are dimmed.
- **The** CEILING applies.



Under the threshold nothing is boosted: the level goes out 4 dB lower (OUTPUT −4 dB, to match).

Over it, each dB in comes out 1.6 dB higher, up to 6 dB more (MAX BOOST): the peaks stand out again.

The CEILING (dotted) caps the boost alone: no boosted peak passes it. Without it: the grey dashes.

A negative OUTPUT gives the boost more room under the ceiling. Peaks that are over it already pass as they are: it never turns anything down.

FIGURE 23 The curve of Drum Bus Punch: UP, THRESHOLD −14 dBFS, 1:1.6, MAX BOOST 6 dB, OUTPUT −4 dB, CEILING −1 dBFS.

The CEILING

Upward expansion makes peaks higher, and on material that is already loud that could take them over 0 dBFS. The CEILING prevents it. It looks ahead and limits **the boost alone**, so that no boosted peak of the final output, after OUTPUT, goes over it. On drums peaking at −6 dBFS with up to 24 dB of boost, the output peaks at exactly −1.00 dBFS with the ceiling there, never over.

- **It never turns anything down.** Peaks that are over the ceiling already, before any boost, pass as they are. It only stops the boost from adding to them.
- **A negative OUTPUT gives the boost more room**, because the ceiling sits after it. With OUTPUT at −6 dB, the boost can use 6 dB more under the same ceiling. That is why the Upward presets turn OUTPUT down by 2 to 4 dB: the level stays about where it was, and the peaks have room to grow.

> **Tip:** On material that is already flat and close to 0 dBFS, upward expansion can only add a little punch, because the ceiling leaves it little room. Turn OUTPUT down a few dB first, then raise MAX BOOST.

A key from another track

With EXT KEY on, the expander doesn't listen to its own track but to another one, sent to its **sidechain input** (some hosts call it the **key** input). The other track decides when it opens; you hear the track the plugin is on. Use it to:

- open a bass, a pad or a guitar in time with a kick (*Creative FX* ▸ *Keyed Pad Pump*);
- chop a pad or a vocal in time with a hi-hat or a click (*Creative FX* ▸ *Keyed Stutter*);
- open a noisy track from a clean recording of the same part, such as a kick's outside microphone from its inside one.

Routing the key. Every host does this a little differently:

1. Put VEIRA Expander on the track you want to hear, and switch EXT KEY on.
2. Send the key track to VEIRA Expander's sidechain input:
    - **Hosts with a sidechain menu** at the top of the plugin's window: choose the key track, or a bus that carries it, in that menu.
    - **Hosts where the sidechain input must be switched on first:** switch it on in the plugin window's header, then on the key track add a send to *VEIRA Expander – Sidechain* (the name varies).
    - **Other hosts:** look for the plugin's sidechain or key input in the routing of the key track's send or output, or in the plugin's input pins (inputs 3 and 4).
3. Play. The teal detector line on the waveform now follows the key track. Turn LISTEN on to hear the key and set KEY LOW and KEY HIGH.

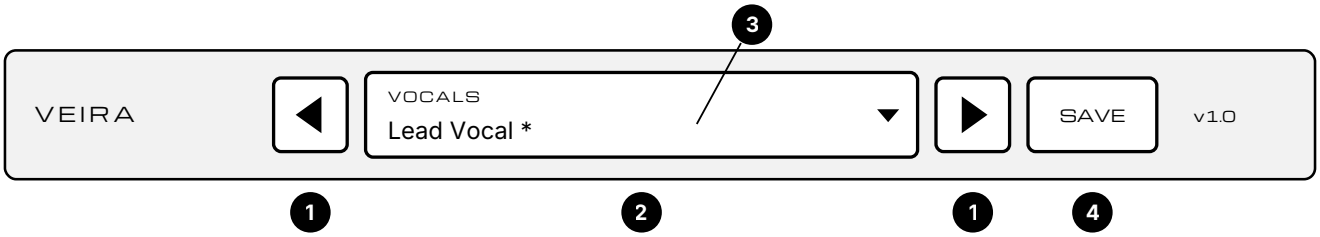
- The sidechain can be mono or stereo. With nothing routed to it, the expander listens to its own track.
- THRESHOLD is now measured on the key track, so set it from the key's level. The Creative FX presets assume a key track peaking around −4 dBFS.

Presets

VEIRA Expander comes with **55 factory presets** in 11 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 24 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 Expander 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 Expander/<Folder>/
Windows	%APPDATA%\VEIRA\VEIRA Expander\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 every control except [LISTEN]. The Drums presets all use the key filters.

Folder	Presets ([RATIO], and anything special)
Default	Init (1:2), Gentle Cleanup (1:2), Tight Gate ([GATE]), Natural Expander (1:3)
Drums	Kick Tighten (1:6), Kick Natural (1:3), Snare Tighten ([GATE]), Snare Ghost Notes (1:3), Snare Bottom Tight ([GATE]), Toms Clean ([GATE]), Overheads Bleed Down (1:2), Room Shortener (1:3)
Bass	DI Noise Floor (1:2), Amp Hum Down (1:3), Finger Noise Tame (1:1.6), Synth Bass Tails (1:4)
Guitar	High Gain Noise ([GATE]), Chug Tightener ([GATE]), Clean Amp Hiss (1:2), Acoustic Room Down (1:1.8), Lead Sustain Friendly (1:3)
Keyboards	Piano Pedal Noise (1:2), Organ Hum Down (1:3), Electric Piano Hiss (1:2), Synth Pad Floor (1:1.5)
Vocals	Lead Breaths Down (1:2), Lead Room Tone (1:2.5), Headphone Spill (1:4), Backing Vocal Tight (1:6), Rap Vocal Tight (1:4), Choir Gentle (1:1.5)
Mix Bus	Noise Between Sections (1:2), Gentle Downward (1:1.3), Stem Bleed Cleanup (1:2.5), Parallel Floor (1:3; [MIX] 50 %)
Mastering	Tape Hiss Fades (1:1.5), Gap Silencer ([GATE]), Gentle Master Expand (1:1.2), Intro Noise Floor (1:2)
Speech	Podcast Room Tone (1:2.5), Voice-Over Clean (1:4), Dialogue Gentle (1:1.6), Interview Two Mics (1:3; [LINK] 0 %), Video Call Cleanup (1:6)
Upward	Drum Bus Punch (1:1.6), Snare Crack Back (1:2), Overcompressed Mix (1:1.5), Transient Lift (1:2; [MIX] 60 %), Bass Pluck Lift (1:1.8), Vocal Presence Lift (1:1.4)
Creative FX	Gated Snare Room ([GATE]; [HOLD] 180 ms), Keyed Stutter ([GATE]; [EXT KEY]), Keyed Pad Pump ([GATE]; [EXT KEY]), Swell In (1:4; [ATTACK] 80 ms), Extreme Expansion (1:16)

Levels: only [THRESHOLD] depends on your track's level. The presets assume drum microphones and buses peaking around −4 dBFS, instruments, vocals and speech around −8 dBFS and premasters around −3 dBFS. If yours peaks hotter or quieter, move [THRESHOLD] by the same number of dB, then set it by eye on the waveform.

Recipes

Clean up a noisy track in a minute

1. Load *Default* ▸ *Gentle Cleanup* (1:2, 12 dB).
2. Play the track and drag the amber threshold line until it sits just over the noise in the gaps, under the quietest note.
3. Listen to the ends of the notes. If they are cut, lower THRESHOLD or raise RELEASE; if the noise still bothers you, raise RANGE.

Tighten a kick or a snare

1. On the kick, load *Drums* ▸ *Kick Tighten*; on the snare, *Snare Tighten*.
2. Turn LISTEN on: you should hear mostly the drum itself. Adjust KEY LOW and KEY HIGH until the other drums are gone from the key, then turn LISTEN off.
3. Set THRESHOLD so every hit opens it, ghost notes aside (for those, use *Snare Ghost Notes*).
4. Shape the length with HOLD and RELEASE.

Toms that ring, and nothing in between

1. Load *Drums* ▸ *Toms Clean* on each tom.
2. Set THRESHOLD so each tom hit opens it and the snare does not. KEY HIGH keeps the cymbals out.
3. HOLD and RELEASE set how long each hit rings: make them longer for a big, open sound.

Hum and hiss between the notes

1. On a bass, load *Bass* ▸ *Amp Hum Down*; on an electric piano, *Keyboards* ▸ *Electric Piano Hiss*; on a clean guitar, *Guitar* ▸ *Clean Amp Hiss*.
2. *Amp Hum Down* and *Electric Piano Hiss* use KEY LOW or KEY HIGH, so the hum or the hiss itself can't keep the expander open.
3. Set THRESHOLD over the hum in the rests. The long HOLD keeps sustained notes whole.

A podcast or voice-over without the room

1. Load *Speech* ▸ *Podcast Room Tone*, or *Voice-Over Clean* for a darker background.
2. Set THRESHOLD between the room in the pauses and the quietest words.
3. If quiet word endings disappear, raise HYSTERESIS or HOLD. If the room pumps up and down, make RANGE smaller: 9 to 15 dB is often enough (*Dialogue Gentle*).

Give a squashed drum bus its punch back

1. Load *Upward* ▸ *Drum Bus Punch*.
2. Set THRESHOLD a little under the hits, so the teal line crosses it on every hit and the body stays under it.

3. Raise [MAX BOOST] for more punch, and use [OUTPUT] to match the [INTEGRATED] loudness in and out, so you judge the punch and not the level.
4. For only the snare's crack, try *Snare Crack Back*.

Pump a pad from the kick

1. Put VEIRA Expander on the pad and load *Creative FX* ▸ *Keyed Pad Pump* ([EXT KEY] on).
2. Route the kick to the plugin's sidechain input (see *A key from another track*).
3. The pad now opens on every kick and falls away between them. Set the length with [HOLD] and [RELEASE].

Specifications

Type	Downward and upward expander, to a gate
Channels	Mono or stereo; sidechain input mono or stereo
Expansion	MODE DOWN or UP (DOWN); THRESHOLD −80.0 to 0.0 dBFS (−40.0 dBFS); RATIO 1:1 to 1:8, then steeper (1:16, 1:80 …) to GATE (1:2.0); RANGE 0.0 to 80.0 dB, 80 = Silence (40.0 dB), in UP MAX BOOST up to +24.0 dB; KNEE 0.0 to 24.0 dB (6.0 dB); HYSTERESIS 0.0 to 12.0 dB (3.0 dB, DOWN)
Timing	ATTACK 0.10 to 100 ms (1.0 ms); HOLD 0.00 to 500 ms (20 ms, DOWN); RELEASE 5.0 ms to 3.00 s (150 ms), the time to travel 90 %; AUTO RELEASE 0.35 to 2 times RELEASE (off); LOOKAHEAD 0.0 to 10.0 ms (2.0 ms)
Detector and key	PEAK (the highest sample over 15 ms) or RMS (about 10 ms) (PEAK); KEY LOW Off (20 Hz) to 2.00 kHz and KEY HIGH 100 Hz to Open (19.5 kHz), 24 dB per octave, on the key only (Off, Open); LISTEN (never in an offline bounce); EXT KEY (off); LINK 0 to 100 % (100 %)
Output	CEILING −24.0 to 0.0 dBFS (−1.0 dBFS, UP), on the final output; MIX 0 to 100 % (100 %); OUTPUT −24.0 to +24.0 dB (0.0 dB)
At rest	With the gain at 0 dB, or MIX 0 %, and OUTPUT 0.0 dB, the output is the input, delayed, bit for bit
Automation	THRESHOLD, RATIO, KNEE, RANGE, MIX and OUTPUT glide over about 20 ms; LOOKAHEAD glides
Latency	10 ms at every setting: 441 samples at 44.1 kHz, 480 at 48 kHz, 960 at 96 kHz, 1920 at 192 kHz; reported to the host; the host's bypass delayed by the same amount
Displays	Waveform of the last 5 s, in and out, with the detector and a draggable threshold; gain lane (−48 dB down, +24 dB up); transfer curve with a live dot (−80 to 0 dBFS)
Metering	IN and OUT peak and RMS per channel with held peaks (0 to −60 dBFS); REDUCTION or BOOST (24 dB); loudness in and out, short-term and integrated (LUFS); latency; processor load
Presets	55 factory presets in 11 folders, plus your own
Window	1240 × 760 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 Vexp

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*.

It cuts off the ends of my notes. THRESHOLD is too high, or the expander closes too fast. Lower THRESHOLD, raise HOLD or RELEASE, or turn on AUTO RELEASE. A softer RATIO or a wider KNEE lets tails fade instead of stop.

It loses the start of each note or hit. Raise LOOKAHEAD to at least ATTACK (2 to 5 ms is usually enough), or shorten ATTACK. If you use the key filters, a few ms more LOOKAHEAD helps.

It flutters open and shut as a note fades. That is chatter. Raise HYSTERESIS (4 to 6 dB) and HOLD, or move THRESHOLD away from the level where the notes fade. With low notes, PEAK is steadier than RMS.

The noise still opens it. The noise is over the threshold, or a part of it the key filters let through. Raise THRESHOLD; turn LISTEN on and use KEY LOW against hum and rumble, KEY HIGH against hiss and cymbals.

It sounds gated, not natural. Make RANGE smaller (10 to 18 dB), RATIO softer (1:1.5 to 1:3) and KNEE wider, or bring MIX down a little.

Nothing happens. Check RATIO (at 1:1 nothing happens), RANGE (at 0 dB nothing happens) and MIX (at 0 % you hear the dry sound). In DOWN, the sound must fall under the threshold: watch the teal line on the waveform. With EXT KEY on, the key track decides: check its routing.

EXT KEY makes no difference. Nothing reaches the sidechain input, so the expander still listens to its own track. Route the key track to it (see *A key from another track*); the teal line then follows the key.

My bounce sounds different from playback with LISTEN on. That is intended: LISTEN is for listening, and an offline bounce leaves it out. Turn it off to hear what you will bounce.

In UP the peaks don't get any higher. They are already at the CEILING. Turn OUTPUT down a few dB to give the boost room, or raise the CEILING.

My DAW shows latency, or the track is late. VEIRA Expander reports its 10 ms (480 samples at 48 kHz) to your DAW, which compensates for it. It is the same at every setting. If you play or sing through the track while recording, bypass the plugin until you mix.

How much CPU does it use? Very little: under 1 % of one processor core in our measurements (stereo, 48 kHz, with the key filters, AUTO RELEASE and LINK). The meters show the plugin's own load.

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



VEIRA Expander · User Manual · Version 0.1.0

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

© 2026 VEIRA. Proudly made in the Dominican Republic. VST is a trademark of Steinberg Media Technologies GmbH. Audio Units, Logic Pro and macOS are trademarks of Apple Inc. Pro Tools and AAX are trademarks of Avid Technology, Inc. All other trademarks belong to their owners and are used only to describe compatibility.