VEIRA

STEREO IMAGER

VEIRA 6-Band Stereo Imager

User Manual

A stereo imager in six bands that shows you where every frequency of your mix sits between left and right, so you can keep the lows mono, open up the top and make mono parts stereo without losing anything in mono.



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Welcome

Thank you for choosing **VEIRA 6-Band Stereo Imager**. It controls the stereo picture of a track, a bus or a whole mix, one frequency range at a time. Six bands each have their own WIDTH, STEREOIZE, PAN and ROTATE, so you can keep the kick and bass in a solid centre, spread the cymbals and the air, and steer a lopsided part back into place, all in one plugin. The large **STEREO FIELD** display shows you, for every frequency, where the sound actually sits between left and right, and the vectorscope and correlation meter tell you at a glance whether the mix will survive being played in mono.

What makes it different

- **You see the stereo picture by frequency.** The STEREO FIELD display places each frequency of the output at its direction: mono sound on the centre line, hard-panned sound at L or R, and sound that would cancel in mono in a marked zone beyond L and R.
- **Width that never changes the mono sum.** WIDTH and STEREOIZE only touch the stereo part of the sound (the *side*). Anyone listening in mono hears exactly what they heard before.
- **Mono parts made stereo, safely.** STEREOIZE widens a mono or narrow part without delays, so it doesn't comb-filter in mono, doesn't lean to one side on any note, and never goes out of phase.
- **Clean band splits.** The bands are split with linear-phase filters that always add back to exactly the input, so splitting alone never colours the sound. With every band at its default, the output is the input, bit for bit.
- BASS MONO makes everything under a frequency you choose mono, whatever the bands do: the classic fix for club systems, vinyl and phones.
- **Hands on the display.** Drag the band splits, each band's width and the BASS MONO edge directly on the STEREO FIELD.
- **A clean, legible face.** Knobs with the value in their middle, text you can read at a glance, and a window you can scale from 75 % to 200 %.

How this manual is organised. *Getting started* covers installing and activating. *The panel at a glance* names every part of the window. *How stereo works* is a short primer on left and right, mid and side, correlation, phase and mono compatibility; read it if those words are new to you, because every control in the plugin follows from them. *Controls* explains each knob with drawings of what it does, *Displays* teaches you to read the field, the vectorscope and the meters, and *Presets*, *Recipes*, *Specifications* and *Troubleshooting* follow.

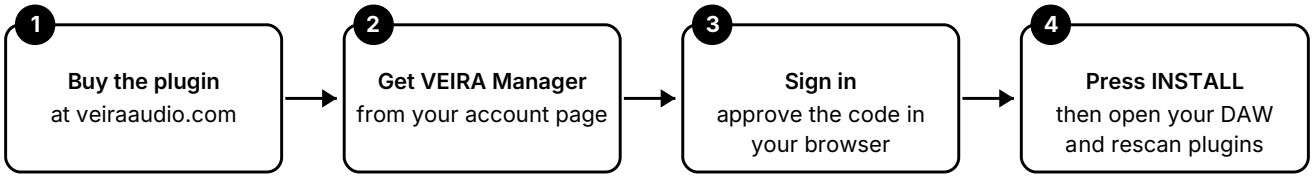
Getting started

What you need

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

Install with VEIRA Manager

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



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

FIGURE 1 From purchase to first sound in four steps.

1. **Buy** VEIRA 6-Band Stereo Imager 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 6-Band Stereo Imager 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 6-Band Stereo Imager appears in your DAW under the manufacturer **VEIRA** (in Logic Pro: Audio Units ▸ VEIRA ▸ VEIRA 6-Band Stereo Imager).

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 6-Band Stereo Imager 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.

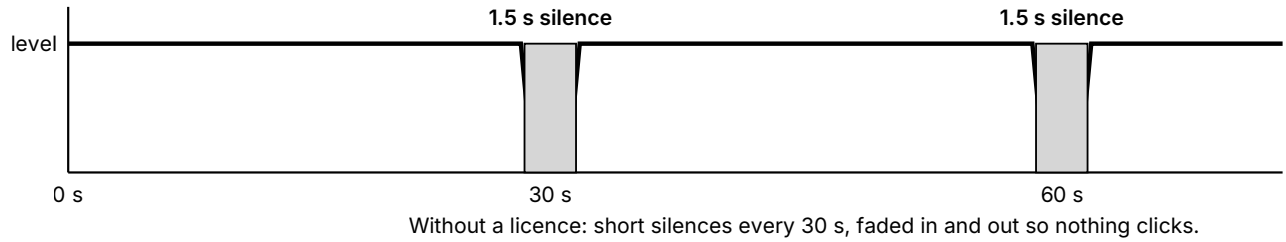


FIGURE 2 What an unlicensed copy does. With a valid licence the audio is never touched.

- **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 6-Band Stereo Imager. 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 6-Band Stereo Imager 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 6-Band Stereo Imager with BASS MONO on and the bands set from narrower in band 2 to wider at the top.

The window has three rows of parts: the **STEREO FIELD**, the **VECTORSCOPE** with its two meters and the **meter bridge** across the top, and the six **band strips** with the **OUTPUT** section along the bottom.

	Part	What it does
1	Preset browser	Steps through and saves presets. See *Presets*.
2	STEREO FIELD	Where every frequency of the output sits between left and right.
3	Band splits	Five draggable crossovers that divide the spectrum into six bands.
4	Width brackets	Each band's WIDTH, drawn and draggable on the field.
5	BASS MONO edge	The frequency below which everything is mono (shaded), draggable.
6	VECTORSCOPE	Every output sample as a point: the shape of the stereo image.
7	CORRELATION	How alike left and right are, from +1 (mono) to −1 (out of phase).
8	BALANCE	Whether the left or the right is louder, in dB.

	Part	What it does
9	Meter bridge	Input and output level and loudness.
10	Band strips	Six identical strips: WIDTH, STEREOIZE, PAN, ROTATE, SOLO, MUTE.
11	BASS MONO	Switches the bass-mono stage on.
12	BELOW	The BASS MONO frequency, a knob.
13	MONO	Listen to the output summed to mono.

Using the controls

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

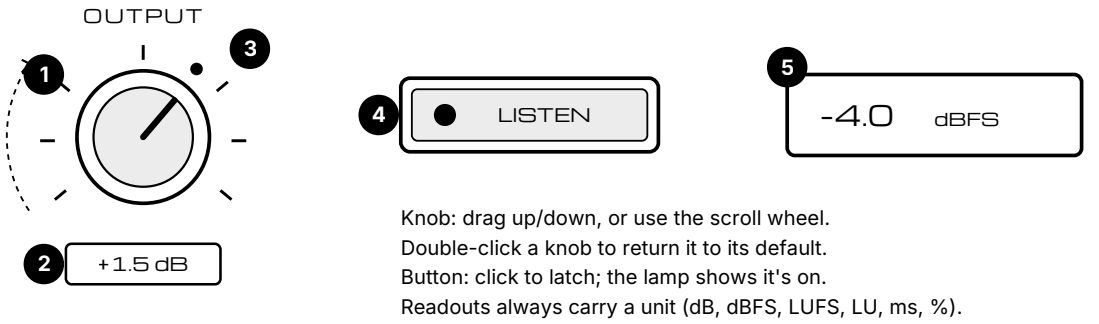


FIGURE 4 The parts you'll find on every VEIRA panel (the labels are examples).

- 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 6-Band Stereo Imager's panel the parts look a little different from the drawing above:

- **Knobs** show their value **in their middle** (100 %, C, 0.0 °, 120 Hz), and a lit ring (blue on screen; in print, the lighter arc) shows how far each is turned. Drag, use the wheel, or double-click (or Alt/Option-click) for the default, as on every VEIRA knob.
- **Type a value:** right-click a knob (Control-click on a Mac). A field opens over the knob with the current value; type the new one and press Return. The number is enough: **140** for a WIDTH of 140 %, **-10** for a ROTATE of −10°, **100** for a BELOW of 100 Hz. Press Escape or click elsewhere to leave it unchanged.
- **Buttons** have no lamps: SOLO, MUTE, BASS MONO and MONO fill with colour when they are on (orange on screen; in print, a solid light button instead of a dark one with an outline). Click again to switch off.
- **Resize the window:** drag its bottom-right corner (the small diagonal lines). It scales from 75 % to 200 % of its normal size and keeps its proportions, so everything stays sharp. Your DAW saves the size with the session.

How stereo works

If you already think in mid and side, skip to *What happens inside*. If not, the next pages will make every control and display in this plugin obvious.

Left, right and the phantom centre

A stereo recording is two signals, **left** (L) and **right** (R), played by two speakers. When both speakers play exactly the same sound at the same level, you don't hear two sources: you hear one **phantom image** floating halfway between them. Make the left a little louder and the image slides to the left; play it only in the left and it sits in the left speaker. That is all a pan pot does.

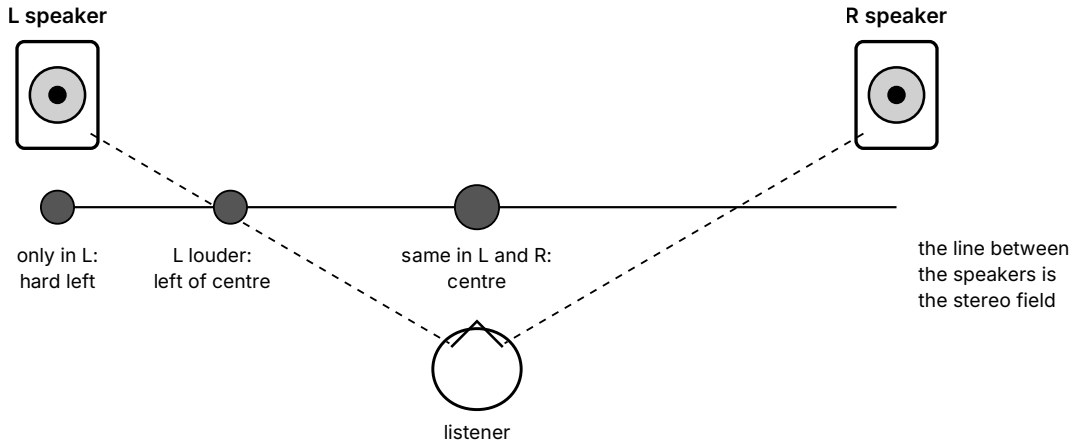


FIGURE 5 Where a sound appears depends on how it is shared between the two speakers. Sound shared equally forms a phantom image in the centre.

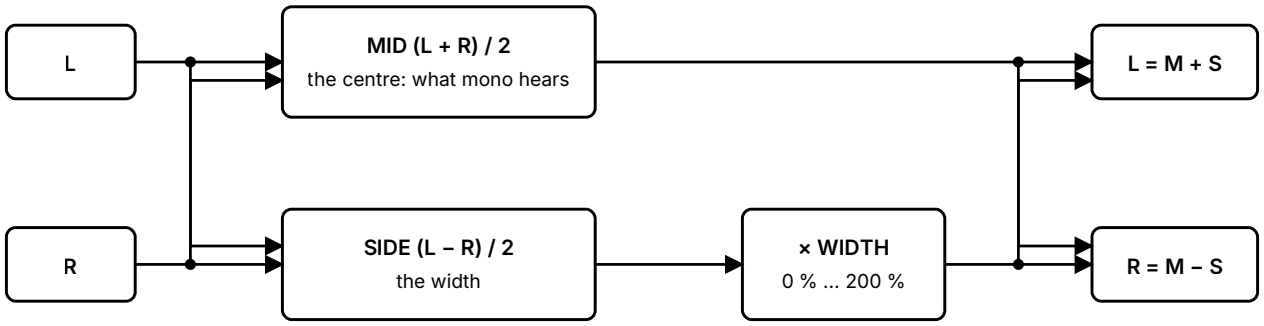
A real mix is never one point. A lead vocal sits in the centre, guitars are panned out, the drum overheads and the reverb spread across the whole field, and those reverbs and room sounds are different in each speaker, so they don't form a point at all: they fill the space. How wide a mix sounds depends on how much of it is the same in both speakers and how much is different.

Mid and side

That idea, *what is the same* and *what is different*, is the key to every stereo tool. Any stereo signal can be rewritten as two other signals:

- **Mid** (M) is what left and right have in common: M = (L + R) / 2. It's what you hear in the centre, and it's exactly what a mono listener hears.
- **Side** (S) is the difference between them: S = (L − R) / 2. It's everything that makes the sound wide.

Nothing is lost: L = M + S and R = M − S, so you can always go back. But in mid/side form, width becomes a single number: **turn the side up and the sound gets wider, turn it down and it gets narrower, take it away and it is mono.** That is precisely what WIDTH does.



The mid passes untouched, so the mono sum never changes.
Only the side is made louder (wider) or quieter (narrower).

FIGURE 6 Mid/side in one picture: split L and R into mid and side, scale the side, and rebuild L and R. This is the heart of WIDTH.

Some quick examples make it concrete:

The sound	Mid	Side	You hear
A mono vocal in the centre (L = R)	all of it	none	a point in the centre; WIDTH can't change it
A guitar panned hard left (R silent)	half	half	a point at the left speaker
A stereo reverb (L and R unrelated)	some	as much as mid	sound filling the space
L and R identical but one inverted (L = −R)	none	all of it	a strange, phasey sound that disappears in mono

> **Tip:** The first row matters most. A single mono recording has no side at all, so widening its side does nothing. That's why the imager has a second width control, STEREOIZE, which *creates* side for mono parts. See *Controls*.

Phase and what happens in mono

A sound wave goes up and down. When two copies of the same wave are added together, the result depends on how they line up, their **phase**:

- **In phase** (lined up): they reinforce each other and the sum is twice as big.
- **Out of phase** (one inverted, 180° apart): every peak meets a trough and the sum is **silence**.
- Anything in between gives something in between. At 90° apart, the copies neither reinforce fully nor cancel.

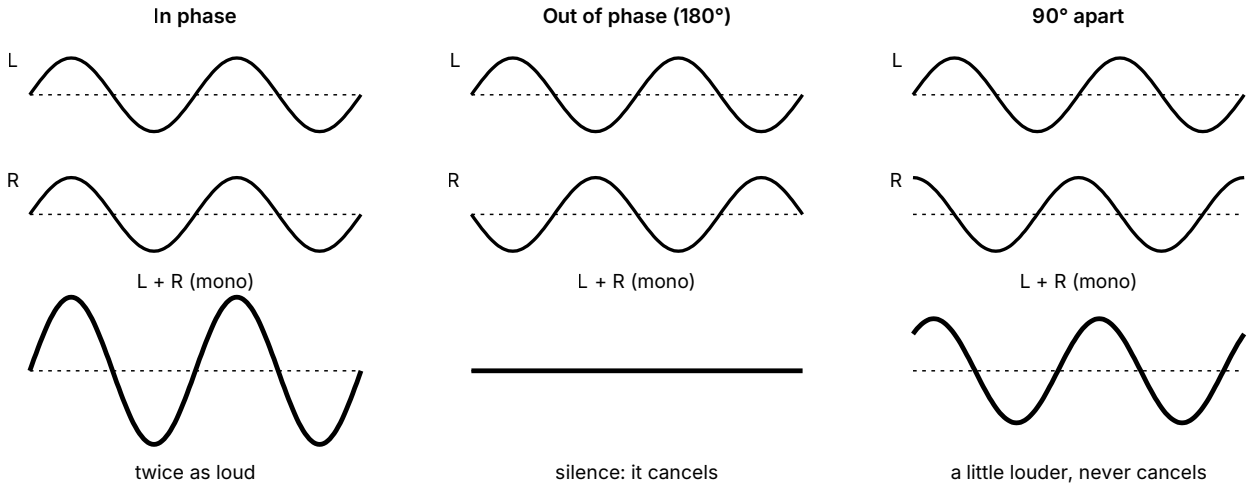


FIGURE 7 Adding left and right, which is what a mono speaker does. Sound that is out of phase between the channels vanishes in mono.

This matters because **your mix will be played in mono**: on phone speakers, smart speakers, in clubs and shops with mono PA systems, on some radio and TV. A mono player simply adds L and R. Anything in your mix that is out of phase between the channels gets quieter or disappears. Wide-sounding tricks that rely on phase (polarity-flipped mics, stereo chorus on bass, "Haas" delays of a few milliseconds between L and R) can sound huge in stereo and then thin, hollow or missing in mono.

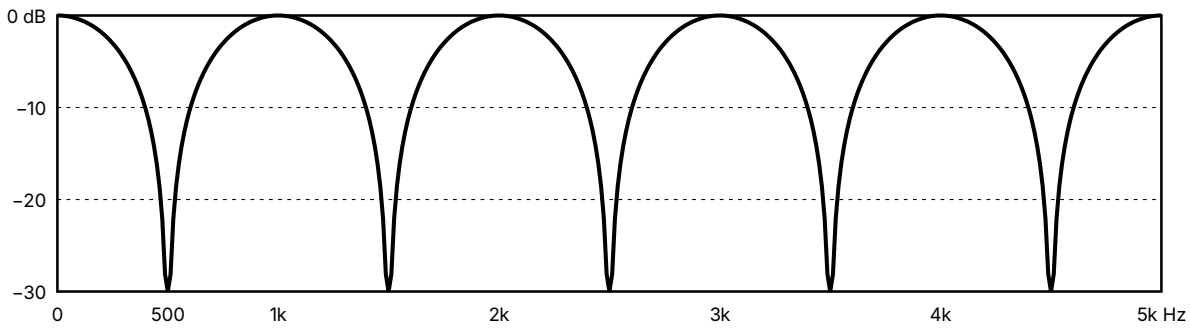


FIGURE 8 Why delay-based widening fails in mono. The mono sum of a 1 ms Haas widening is a comb filter: some frequencies vanish, the part sounds hollow. [STEREOIZE] avoids this by never touching the mid.

Correlation and the vectorscope

Correlation puts one number on how alike left and right are, measured over a short window:

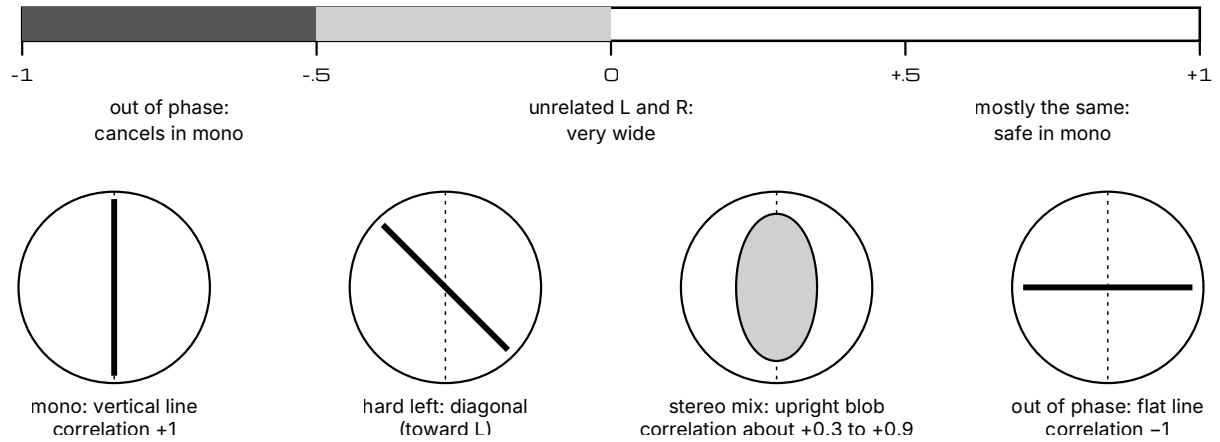


FIGURE 9 Top: the correlation scale. Bottom: the same situations on a vectorscope, which plots mid upward and side across. A healthy stereo mix is a blob taller than it is wide.

- **+1:** left and right are identical. Mono.
- **Around 0:** left and right have nothing in common, like two separate reverbs. Very wide; in mono it loses about 3 dB but doesn't cancel.
- **Below 0:** left and right are working against each other. Parts of the sound cancel in mono. A mix that sits below 0 for long has a phase problem.

Most finished mixes sit between about +0.3 and +0.9. Brief dips toward 0 on wide reverbs are normal. Watch for readings that stay below 0.

Why process stereo in bands?

Different frequency ranges want different widths:

- **The lows (below about 100–150 Hz)** should be mono. Our ears can hardly tell where very low notes come from anyway, kick and bass hit hardest in the centre, two speakers or subwoofers then share the work equally, and vinyl cutting and many club and phone systems need it. Stereo bass mostly brings risk.
- **The low mids** are where mixes get muddy. Wide low-mid reverbs and stereo synths smear the image; narrowing them a little makes a mix clearer and punchier.
- **The mids** hold the vocal and the main instruments. Their width is a musical choice.
- **The highs and the air** are where width sounds most natural and costs least: wider cymbals, string air and reverb shimmer open a mix without moving its centre.

A single width knob for a whole mix can't do this: widening the top would also widen the bass. Six bands let you set each region on its own.

What happens inside VEIRA 6-Band Stereo Imager

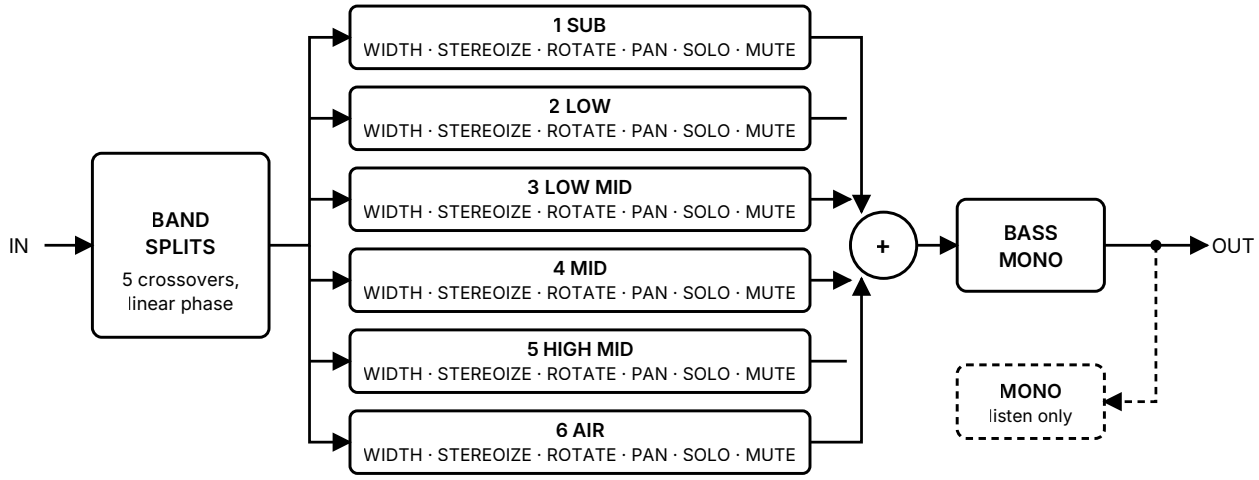


FIGURE 10 Signal flow. The input is split into six bands; each band is shaped on its own; the bands add back together; BASS MONO then makes the lows mono. MONO only changes what you hear while you play, never a bounce.

Inside, the whole imager is one carefully designed filter. Every time you move a control, it works out what the six bands' settings do to left and right at each frequency, designs that response as linear-phase filters, and crossfades to it over about 11 ms, so nothing ever clicks. Two things follow that you can rely on:

- **Neutral really is neutral.** With every band at 100 % WIDTH and nothing else switched on, the filters step aside and the audio only passes through a delay, bit for bit unchanged.
- **The splits don't colour the sound.** At every frequency the six bands add back to exactly the input. Giving two neighbouring bands the same settings is the same as having one band.

The price of linear-phase splits is **latency**: about 24 ms (1152 samples at 44.1 and 48 kHz). It's constant and reported to your DAW, which compensates for it automatically. When you bypass the plugin in your DAW, its bypass is delayed by the same amount, so the track stays in time either way. See *Troubleshooting* for live monitoring.

Controls

The band strips

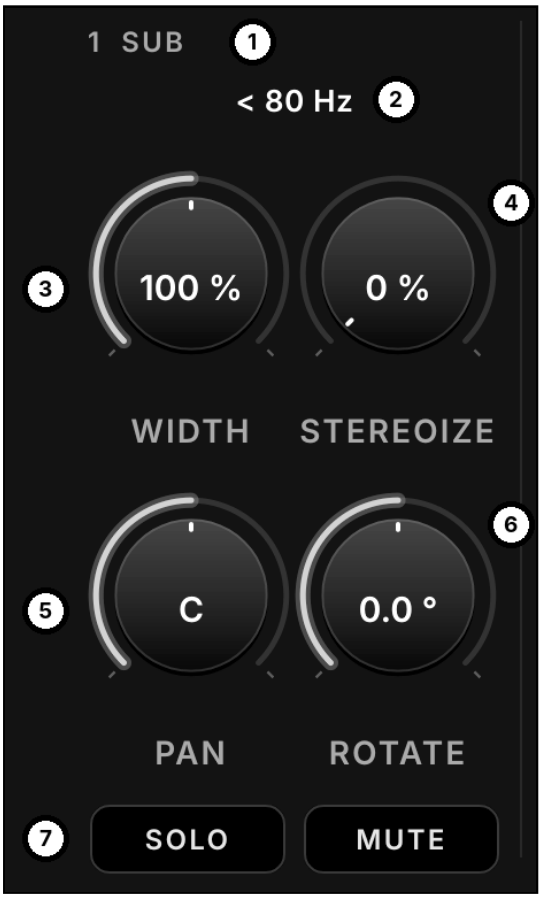


FIGURE 11 Band 1. 1 Band number and name, 2 the band's frequency range, 3 WIDTH, 4 STEREOIZE, 5 PAN, 6 ROTATE and 7 SOLO and MUTE. Each knob shows its value in its middle.

The bottom of the window holds six identical strips, one per band, named **1 SUB**, **2 LOW**, **3 LOW MID**, **4 MID**, **5 HIGH MID** and **6 AIR**. The range 2 under each name, in a dark field, shows the frequencies that band covers right now (for example 80 - 250 Hz, or < 80 Hz and > 8.0k Hz for the outer bands); it follows the band splits as you drag them on the STEREO FIELD.

Control	Range	Default	
WIDTH	0 to 200 %	100 %	The band's side: 0 % mono, 100 % as it was, 200 % twice the side.
STEREOIZE	0 to 100 %	0 %	Creates width from the band's mid, for mono and narrow parts.
PAN	L 100 to R 100	C	A balance for the band: turns the other side down.
ROTATE	−45 to +45°	0.0°	Turns the band's whole image left (−) or right (+), keeping its width.

Control	Range	Default	
SOLO	on / off	off	Hear only this band (and any other soloed band).
MUTE	on / off	off	Take this band out of the output.

WIDTH

WIDTH scales the band's side signal, the part that differs between left and right.

- **100 %** leaves the band exactly as it was.
- **Below 100 %** narrows it; at **0 %** the band is mono, every part of it in the centre.
- **Above 100 %** widens it; at **200 %** its side is twice as loud as before.

The mid, and so the mono sum, never changes. That makes WIDTH the safe first choice: whatever you do with it, a mono listener hears exactly the same thing. What does change is how the stereo version compares with mono: a band widened to 160 % sounds noticeably bigger in stereo than in mono, so check with MONO.

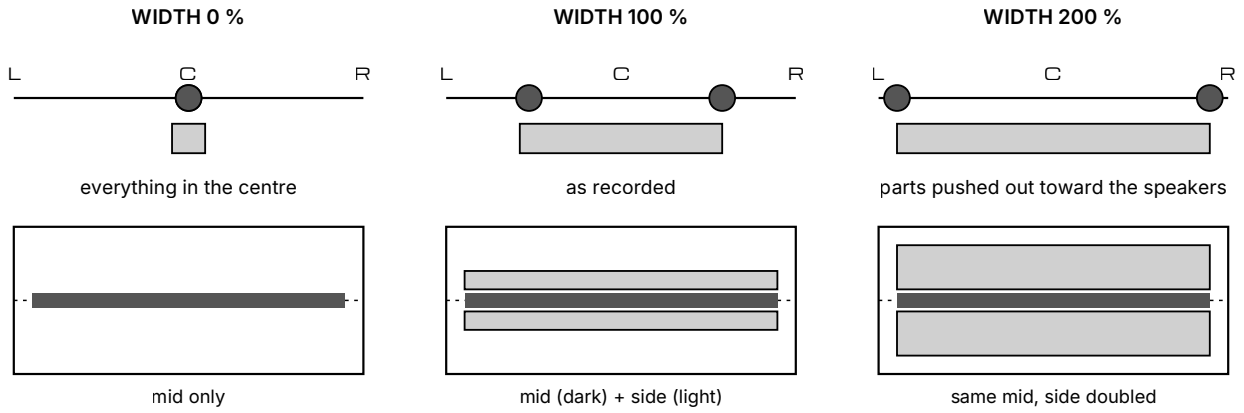


FIGURE 12 Top: what WIDTH does to a stereo part, two instruments panned left and right of centre with a light shading for their room. Bottom: the same in mid (dark, unchanged) and side (light, scaled).

Typical settings. 0–30 % in the lows (or use BASS MONO); 70–90 % in the low mids to clear mud; 100–130 % in the mids; 110–160 % in the high mids and air. On finished mixes and masters, move a few percent at a time.

You can also set WIDTH on the display: drag a band up or down on the STEREO FIELD, and its brackets follow the mouse. Double-click a band there to return it to 100 %.

> **Tip:** WIDTH can only scale side that is already there. On a mono track, or a part recorded with one mic, WIDTH has nothing to work on, at any setting. Use STEREOIZE.

STEREOIZE

STEREOIZE makes a mono or narrow band stereo. It takes a specially filtered copy of the band's mid and adds it to the side, so left and right become different from each other, and the band spreads out between the speakers.

What makes it safe is how that copy is made. It's turned exactly 90° from the mid at every frequency, alternately +90° and −90°, swapping every 250 Hz:

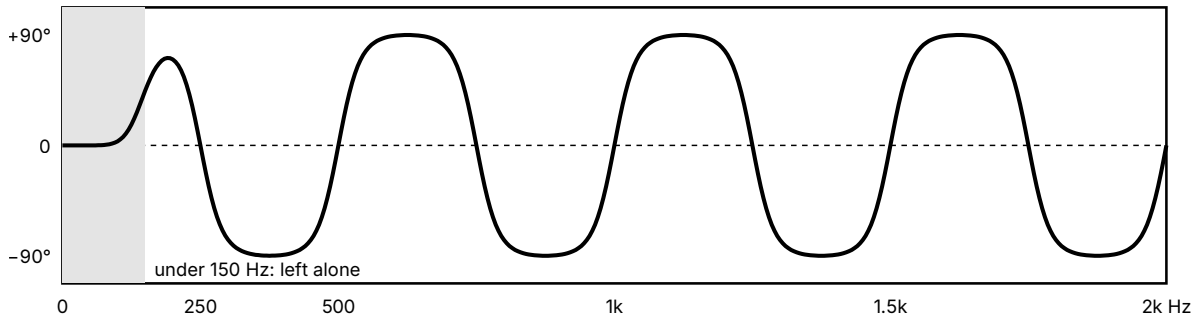


FIGURE 13 How [STEREOIZE] builds width. Because the added part is never in phase or out of phase with the mid, left and right keep the same level at every frequency, and nothing is ever inverted.

This gives [STEREOIZE] four properties that ordinary wideners (short delays, chorus, phase tricks) don't have:

- **The mono sum stays exactly the same.** It only adds side, and side cancels completely when L and R are added. No comb filtering in mono.
- **No note leans to one side.** Left and right keep the same level at every frequency, so a melody doesn't wander from left to right as it moves up and down.
- **Never out of phase.** Even at 100 %, left and right are at most 90° apart, never inverted, so the correlation meter never goes below 0 from [STEREOIZE] alone (on noise it reads about +0.80 at 40 % and about +0.19 at 100 %).
- **The bass is left alone.** Under about 150 Hz [STEREOIZE] fades out, so it never widens a bass line or kick.

How it sounds. Small amounts (15–30 %) give a mono part a sense of space and size without obvious effect; 40–60 % is clearly wide; near 100 % sounds very wide and diffuse, like a wash. Each channel's response moves by at most about +0.4 dB at 30 %, so the tone barely changes.

When not to use it. [STEREOIZE] is for mono and narrow parts. On a recording that is already stereo, the side it adds meets the side that is already there. With a spaced pair of microphones, whose side can itself be 90° from the mid at some frequencies, some stretches of frequency can get *narrower* instead of wider. On stereo material, reach for [WIDTH] first.

PAN

[PAN] moves the band toward one side by turning the other side down. It's a **balance**, with an equal-power law: at [L 100] the right channel of that band is silent, at [R 100] the left is. It never turns anything up.

Use it when one frequency range of a part leans the wrong way, or creatively, to spread a sound across the speakers by frequency (try the *Creative FX ▸ Spectral Pan Split* preset). Remember that a balance on a stereo band also turns down whatever was on the other side.

ROTATE

[ROTATE] turns the band's whole stereo picture around the listener, from −45° (toward the left) to +45° (toward the right), in 0.5° steps. Unlike [PAN], it doesn't turn anything down: it moves everything in the band together, keeping its width. Sounds at the edges come in, and the middle moves out.

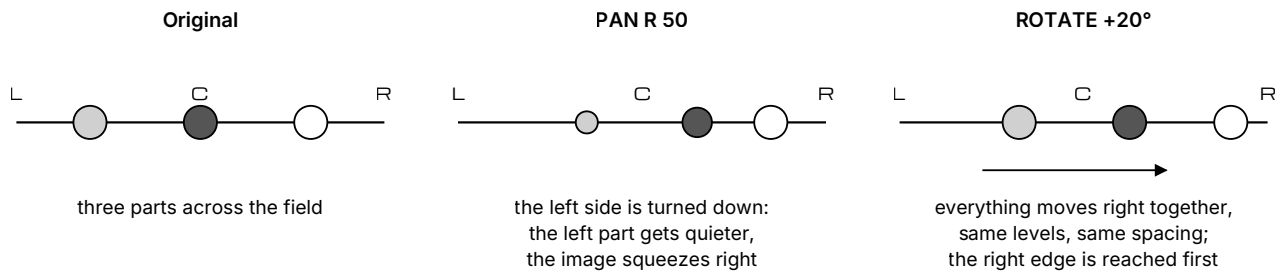


FIGURE 14 PAN turns one side down; ROTATE turns the whole image. Both are per band.

Use ROTATE for a source that sits off-centre (a mix that leans left, an off-axis room recording), or to tilt an instrument across the field by register, low notes one way and high notes the other, as the *Keyboards* ▸ *Keyboard Spread Tilt* and *Strings* ▸ *Orchestra Seating Tilt* presets do. Small values (5–15°) are usually enough.

SOLO and MUTE

- SOLO plays only this band, and any other band you solo with it. Use it to hear exactly what a band contains while you set its splits.
- MUTE takes this band out of the output.

On the display, muted bands, and bands that aren't soloed while another is, are dimmed, and their width readout gets an M or S. SOLO is a **listening aid**: offline bounces (and AudioSuite in Pro Tools) leave it out, so a forgotten solo never ends up in your export. MUTE is part of the sound and is bounced.

OUTPUT: BASS MONO, BELOW and MONO

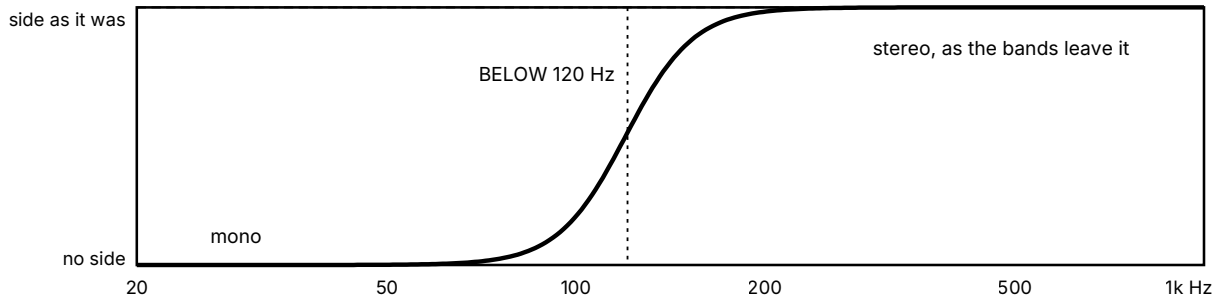


FIGURE 15 The OUTPUT section: 1 BASS MONO (filled: on), 2 BELOW, with its frequency in the middle of the knob, and 3 MONO (off).

Control	Range	Default	
BASS MONO	on / off	off	Makes everything under BELOW mono.
BELOW	20 to 500 Hz	120 Hz	The BASS MONO frequency.
MONO	on / off	off	Listen to the output summed to mono.

BASS MONO and BELOW

With BASS MONO on, everything below the BELOW frequency is made mono, **whatever the bands do**. It works after the bands, so even a band set to 200 % WIDTH or a high STEREOIZE can't put stereo below that frequency. The side is removed with a steep, linear-phase filter (48 dB per octave), so the change is clean and doesn't smear the low end.



How much side passes with BASS MONO on, BELOW at 120 Hz. The mid is never touched.

FIGURE 16 BASS MONO: the side is removed below the BELOW frequency with a steep slope, and passes as before above it.

Setting it. Set BELOW just above the fundamentals of your kick and bass: 80–120 Hz on most music, up to about 150 Hz for vinyl or when a wide synth bass needs firm control. Higher values start to narrow the low mids; that can be what you want on a messy mix but take the guitars' and pianos' lower notes with them. You can also drag the BASS MONO edge on the STEREO FIELD; double-click it for 120 Hz.

The factory presets that use BASS MONO leave the lows' side at least 25 dB down.

MONO

MONO sums the output to mono so you can hear how your mix folds down on a mono speaker. It's the single most important check when you change width: switch it on and off and listen for parts that drop in level, go hollow or vanish.

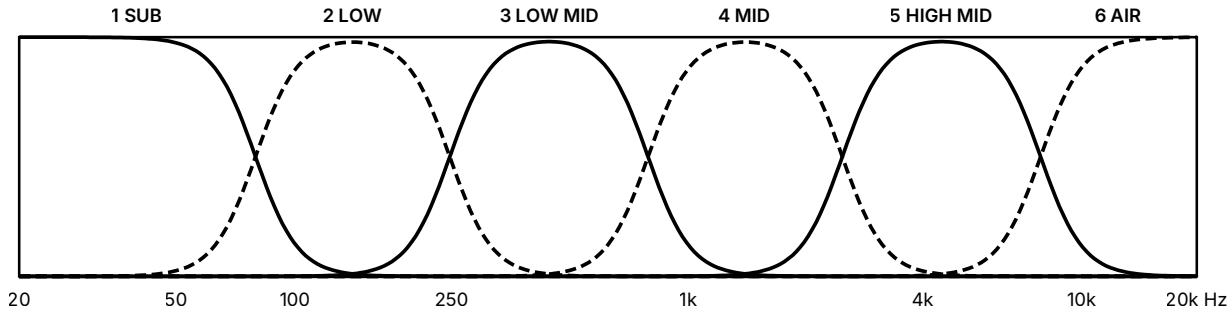
Like SOLO, MONO is a **listening aid**: offline bounces and AudioSuite leave it out.

> **Tip:** Turn your monitoring down a little before you press MONO. Mono playback through two speakers is a few dB louder in the centre, and loudness changes distract from what you're listening for: whether parts *disappear*.

The band splits

Five **crossovers** divide the spectrum into the six bands. They're the vertical lines with round grips at the bottom of the STEREO FIELD; drag a grip sideways to move it. Each one has its own range, and they always stay at least a quarter of an octave (×1.25) apart from their neighbours.

Crossover	Between bands	Range	Default
1	1 SUB and 2 LOW	30 to 300 Hz	80 Hz
2	2 LOW and 3 LOW MID	80 Hz to 1 kHz	250 Hz
3	3 LOW MID and 4 MID	250 Hz to 3 kHz	800 Hz
4	4 MID and 5 HIGH MID	800 Hz to 8 kHz	2.5 kHz
5	5 HIGH MID and 6 AIR	2.5 to 16 kHz	8 kHz



Each band's share of every frequency, at the default splits. At every frequency the shares add up to exactly 1.

FIGURE 17 The six bands at their default splits (80 Hz, 250 Hz, 800 Hz, 2.5 kHz, 8 kHz). The slopes are steep, 48 dB per octave, so a band only overlaps its neighbours near the split.

Move the splits to your material. The defaults are a reasonable guess for a full mix, but the imager works best when each band holds one musical job. Before shaping widths, solo bands and drag the splits so that, for example, band 1 holds the kick and bass fundamentals, band 2 the bass harmonics and the body of the snare, band 3 the low-mid warmth, band 4 the vocal and guitars, band 5 the presence and cymbals and band 6 the air. Every factory preset notes which split to move first.

Hover over a split for its tooltip; double-click it to return it to its default. The band ranges under the band names follow as you drag.

Displays

STEREO FIELD

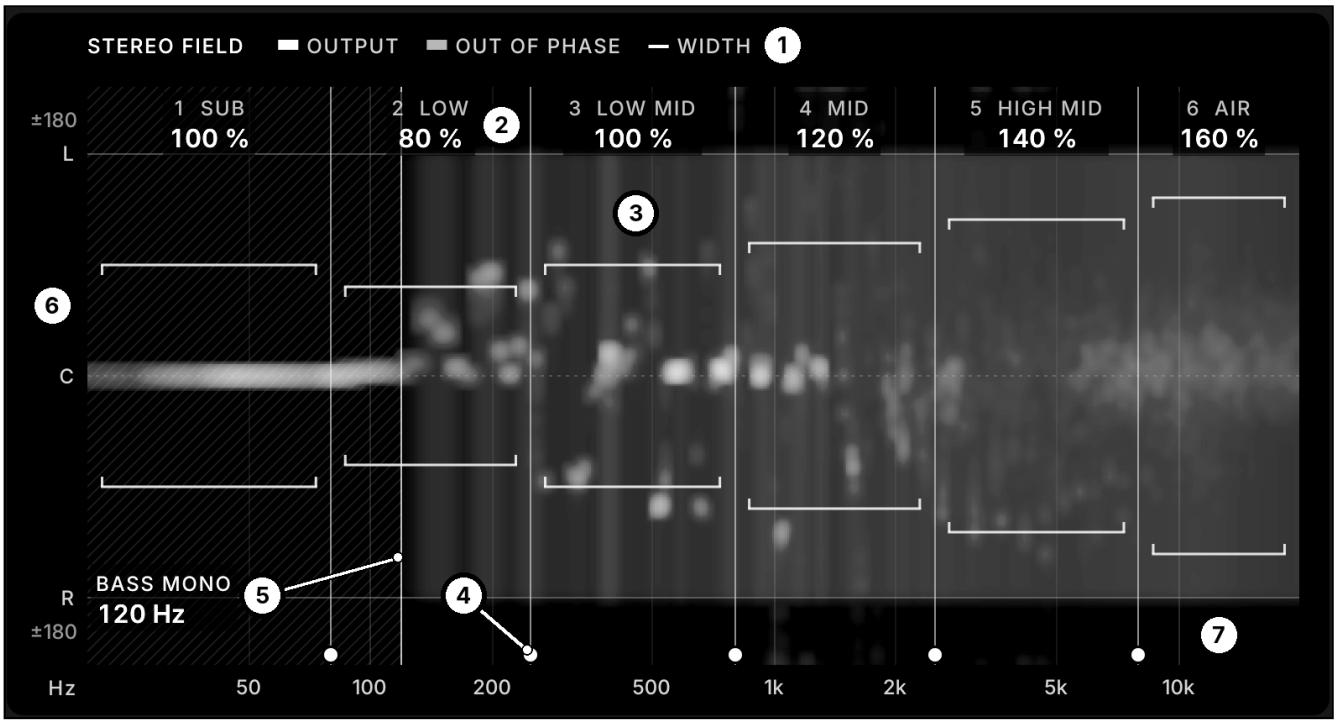
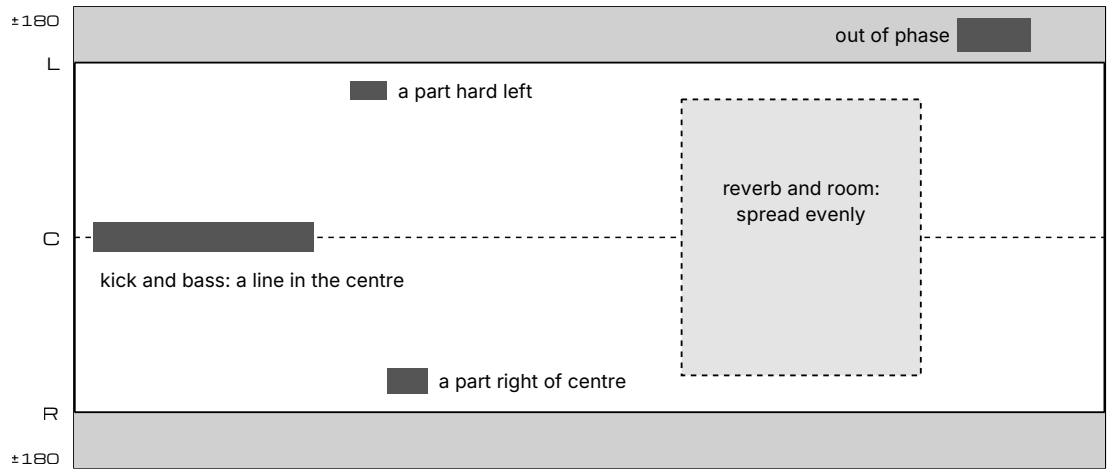


FIGURE 18 The STEREO FIELD: 1 legend, 2 band name and WIDTH, 3 a band's width brackets, 4 a band split with its grip, 5 the BASS MONO edge and shading, 6 the L, C and R scale and 7 the out-of-phase zone.

The STEREO FIELD is a map of your stereo image by frequency:

- **Across:** frequency, from 20 Hz at the left to 20 kHz at the right, with the scale along the bottom.
- **Down:** position. **L** at the top, **C** (centre) in the middle, **R** at the bottom 6 .
- **Beyond L and R** 7 : a zone for sound that is **out of phase** between the channels, which cancels in mono. Its edges are labelled ±180. On screen it is shaded red; on paper, think of it as the strip outside the L and R lines.



Darker means louder. A narrow mix is a thin band along C; a wide one fills the field.

FIGURE 19 How to read the field. Each frequency is placed at the direction its left and right make together; sound with no single direction is spread evenly.

What it shows. About 30 times a second, every frequency of the **output** is placed at the direction its left and right point to together (averaged over 300 ms):

- A mono sound sits on **C**.
- A hard-panned sound sits on **L** or **R**; one panned part-way sits part-way.
- An inverted (out-of-phase) sound sits in the zone beyond L and R.
- The part of the sound that has no single direction (reverb, room, two unrelated channels) is spread evenly across the field, so wide sound *fills* it.

The brightness follows the level on a decibel scale, from −84 to −6 dBFS: louder frequencies are brighter on screen (darker in print). The legend (1) names the three things drawn: **OUTPUT** (the field itself, amber on screen), **OUT OF PHASE** (red) and **WIDTH** (the brackets).

The bands drawn over it.

- (2) At the top of each band: its number and name, and its WIDTH (with M when muted and S when soloed). Narrow bands show only the number.
- (3) **Width brackets:** two brackets per band, mirrored about the centre line. At 0 % they sit on the centre line, at 100 % halfway to L and R, at 200 % on L and R. **Drag a band up or down** to set its WIDTH; double-click it for 100 %. Muted and non-soloed bands are dimmed.
- (4) **Band splits:** vertical lines with grips at the bottom. Drag sideways.
- (5) BASS MONO**:** when it's on, the lows below its frequency are hatched, and its edge is a light line you can drag sideways. Its frequency is written in the bottom-left corner.

What to look for.

- **The lows should be a thin, bright line along C.** If the area under 150 Hz spreads toward L and R, or shows in the out-of-phase zone, your low end will lose weight in mono: use BASS MONO.

- **Anything in the out-of-phase zone** will get quieter or vanish in mono. A little, briefly, is normal on wide reverbs; a lot, or for long, is a phase problem (a flipped mic, a stereo-chorused bass, a Haas widener). Try the *Mono Fix* presets.
- **A lopsided picture**, more energy toward L than R across a range of frequencies, is an image that leans. Check the BALANCE meter and consider ROTATE.
- **Compare the brackets with the colour.** The brackets show what you asked for; the colour shows what the music actually does. A band at 200 % whose colour stays on C is mono material: WIDTH can't widen it.

Hover over the field for a tooltip that explains whatever is under the mouse: a split, a band or the BASS MONO edge.

VECTORSCOPE, CORRELATION and BALANCE

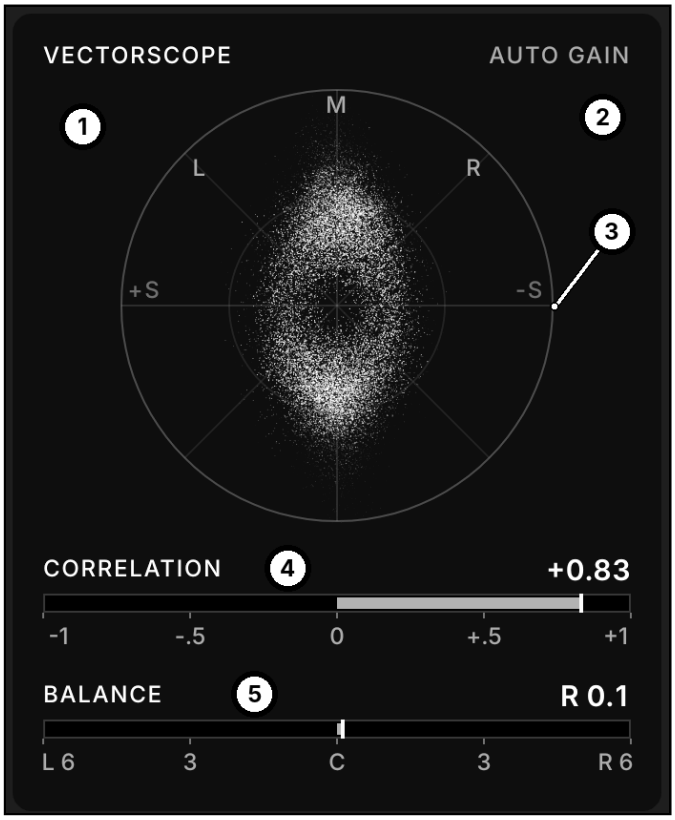


FIGURE 20 1 The vectorscope, 2 its automatic gain, 3 the out-of-phase axis (+S / −S), 4 CORRELATION and 5 BALANCE.

VECTORSCOPE

1 The vectorscope draws every output sample as a point: **mid upward** (M at the top) and **side across**. The diagonals marked L and R are where sound panned hard left or right lands; the horizontal axis, marked +S and -S 3 , is where sound that is completely out of phase lands. Points fade over a fraction of a second, so the shape you see is the last moment of music.

You see	It means
A thin vertical line	Mono: left and right identical.

You see	It means
A line leaning toward L or R	A sound panned to that side.
An upright blob or flame	A normal stereo mix: mostly mid, with healthy width.
A round cloud filling the circle	Very wide, uncorrelated sound (big reverbs, decorrelated pads).
A shape lying flat along +S / −S	Out-of-phase sound: it cancels in mono.

2 **AUTO GAIN:** the scope scales itself to the music, rising instantly with louder points and settling back over 1.5 seconds, so a quiet track fills the circle as well as a loud one. Its size tells you about shape, not level; read level on the meter bridge.

CORRELATION

4 The correlation meter shows how alike left and right are over the last 300 ms, from **−1** to **+1**, with the value above the bar (for example [+0.83]). It reads [--] when there's nothing to measure.

- **+1:** mono. **+0.3 to +0.9:** a normal stereo mix. **Around 0:** very wide, unrelated channels. **Below 0:** out of phase; parts will cancel in mono.

On screen the bar grows from 0 toward the reading. Use it while you set [WIDTH] and [STEREOIZE]: the further you widen, the lower it falls. The Mix Bus and Mastering presets keep it at +0.3 or above.

BALANCE

5 BALANCE shows how much louder the left or the right is, in dB, over the last 300 ms, on a scale from [L 6] through [C] to [R 6]. The readout says [C] when they are within 0.05 dB, or [L] or [R] and the difference (for example [R 0.1]). A mix whose balance sits a dB or more to one side for a whole song usually leans; the *Mono Fix* ▸ *Re-centre* presets and [ROTATE] help.

The meter bridge (IN | OUT)

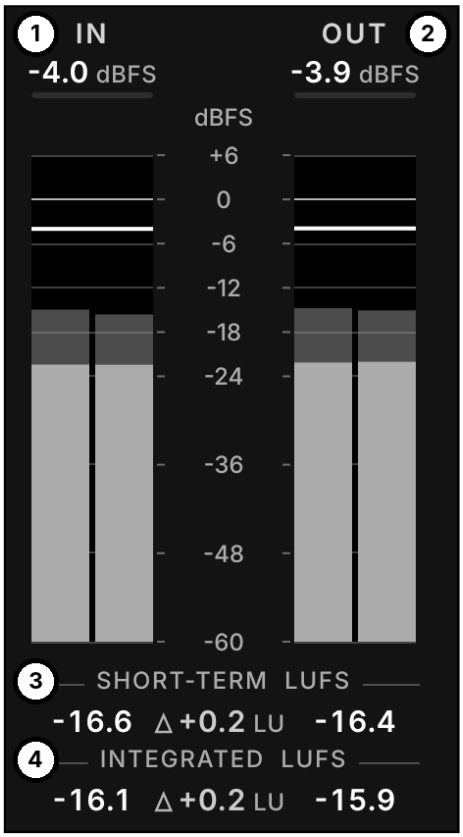


FIGURE 21 The meter bridge: 1 input and 2 output level, 3 short-term and 4 integrated loudness with the OUT − IN difference.

VEIRA 6-Band Stereo Imager's meter bridge is the standard one, measured on the plugin's input and output. Width changes move the level a little (widening adds side energy, narrowing removes it), so the Δ readings are a fair way to compare with bypass.

Reading the IN and OUT meters

The meter bridge measures what goes into VEIRA 6-Band Stereo Imager and what comes out, in level and in loudness. The drawing shows the input and output columns; any extra column on your plugin's bridge is described above.

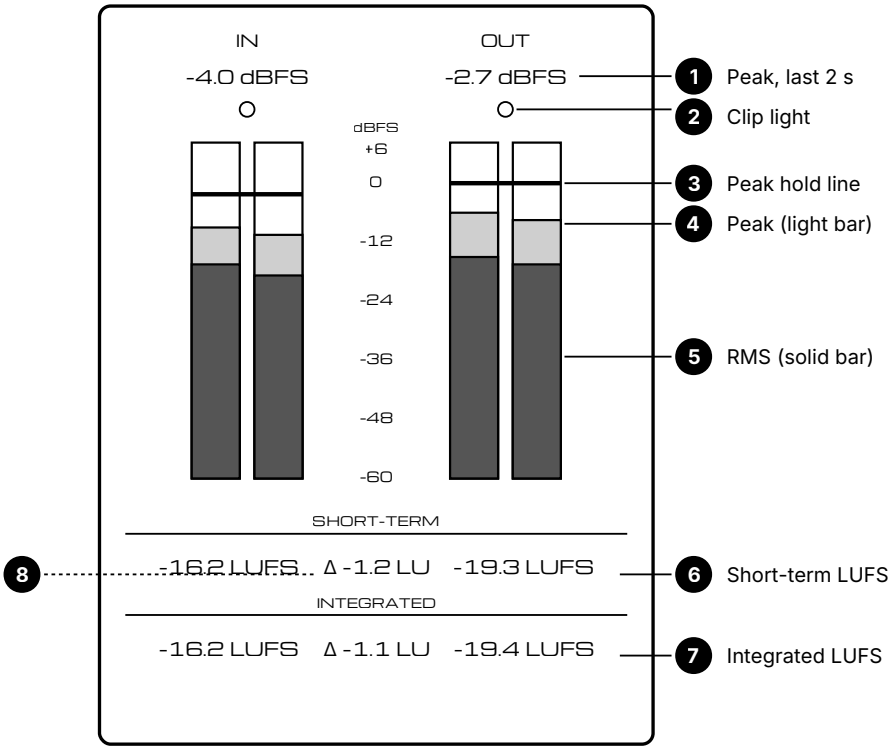


FIGURE 22 The meter bridge, left and right channel bars for input and output, with loudness below.

- 1 **Peak readout:** the highest sample peak of the last two seconds, in dBFS. It turns to a warning above 0 dBFS.
- 2 **Clip light:** lights on any sample at or over full scale. It stays lit until you click the meter.
- 3 **Hold line:** marks the recent peak on the bar.
- 4 **Peak bar** (the lighter part): the instantaneous sample peak of each channel.
- 5 **RMS bar** (the solid part): the average level over 300 ms, closer to how loud it sounds.
- 6 **SHORT-TERM:** loudness over the last 3 seconds, in LUFS, for the input (left) and the output (right).
- 7 **INTEGRATED:** loudness of everything since the measurement started, gated as the ITU-R BS.1770-4 and EBU R 128 standards require.
- 8 **Δ (delta):** OUT minus IN, in LU. It tells you how much louder (+) or quieter (−) VEIRA 6-Band Stereo Imager made the signal, so you can match levels fairly when you compare with bypass. It reads [--] while either side is too quiet to measure (below −70 LUFS).

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

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

Mono tracks and mono compatibility

Using the imager on a mono track

The imager accepts a **mono input with a stereo output**, so you can turn a mono recording into a stereo one with [STEREOIZE]. In your DAW, insert it on the mono track as a *mono-to-stereo* (sometimes *mono → stereo*) plugin; in Logic Pro choose the *Mono → Stereo* version of the plugin on a mono channel. Both output channels start as copies of the input, and:

- [WIDTH] has no effect (there is no side to scale);
- [STEREOIZE] creates the width, from 150 Hz up;
- [PAN] and [ROTATE] place the band, [BASS MONO] keeps the lows mono, as usual.

The *Mono … Spread* presets in each instrument folder (for example *Guitar ▸ Mono Guitar Spread*, *Vocals ▸ Mono Backing Spread*, *Drums ▸ Mono Room Widener*) are made for this.

A mono-compatibility routine

Run this on a mix or bus before you finish:

1. Play the loudest, busiest section. Look at the STEREO FIELD: the lows should be a line on C, nothing large should sit in the out-of-phase zone.
2. Watch CORRELATION. It should stay mostly above +0.3, with only brief dips.
3. Press [MONO] and listen. Does the low end keep its weight? Do any parts drop out or turn hollow? Does the reverb vanish completely?
4. If the lows suffer, switch on [BASS MONO] at 100–120 Hz. If a part cancels, find its band (solo bands with [SOLO]) and narrow it with [WIDTH], or try *Mono Fix ▸ Out Of Phase Pull-In* or *Haas Width Tamer*.
5. Switch [MONO] off and compare again. Small losses in mono are normal for wide material; what matters is that nothing important disappears.

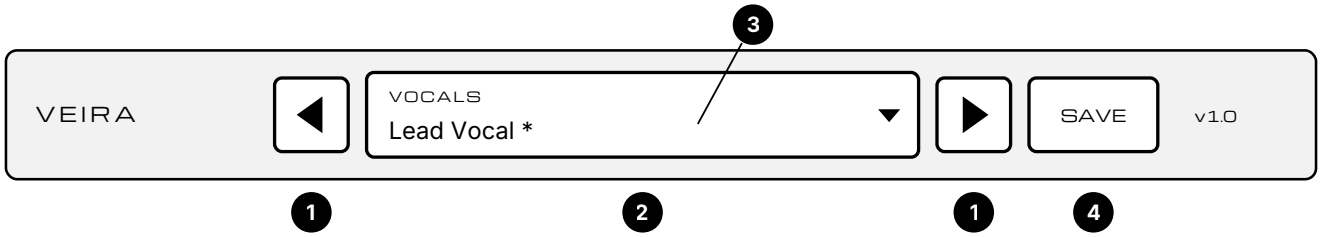
> **Note:** [WIDTH] and [STEREOIZE] never change the mono sum, so they can't make the mono version *worse* than the original. What they change is the *gap* between stereo and mono: the wider you go, the more a mono listener misses compared with a stereo one. Narrowing a phasey part, on the other hand, brings stereo closer to what mono listeners already hear.

Presets

VEIRA 6-Band Stereo Imager comes with **74 factory presets** in 13 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 23 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 6-Band Stereo Imager 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 6-Band Stereo Imager/<Folder>/
Windows	%APPDATA%\VEIRA\VEIRA 6-Band Stereo Imager\Presets\<Folder>\

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

Presets in your DAW

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

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

The factory folders

Folder	Presets
Default	Init
Drums	Kit Glue, Kick Snare Focus, Wider Overheads, Room Bloom, Cymbal Spread, Tight Low Drums, Mono Room Widener
Bass	Bass Tighten, Mono Below 120, Synth Bass Width, Wide Chorus Tamer, Harmonic Spread, Wide Synth Mono Lows
Guitar	Stereo Acoustic Wider, Acoustic Body Centre, Mono Guitar Spread, Rhythm Wall, Doubles Narrower, Guitar Lows Mono
Keyboards	Piano Wider, Piano Narrow For Mix, Keyboard Spread Tilt, Electric Piano Spread, Haas Pad Narrow, Piano Lows Centred
Strings	Section Wider, Hall Bloom, Quartet Focus, Strings Air Width, Mono Strings Spread, Orchestra Seating Tilt
Brass	Brass Section Wide, Horns Punch Centre, Mono Horn Spread, Brass Hall Bloom, Brass Air Width
Woodwinds	Ensemble Wide, Breath Air Width, Mono Reed Spread, Winds Focus, Winds Hall Bloom
Vocals	Wide Verb Centred Lead, Vocal Air Width, Backing Stack Wide, Doubles Tuck In, Choir Spread, Mono Backing Spread, Tight Verb Lead Focus
Mix Bus	Bus Gentle Wide, Mono Low End Bus, Centre Focus Bus, Big Chorus Width, Tame Wide Mix, Narrow Mix Lift
Mastering	Bass Mono 100 Hz, Gentle Top Width, Subtle Master Width, Open Master Width, Tame Over-Wide Mix, Vinyl Safe Lows, Low Mid Clean-Up
Mono Fix	Mono Low End Fix, Wide Synth Bass Fix, Haas Width Tamer, Out Of Phase Pull-In, Re-centre Left Lean, Re-centre Right Lean
Creative FX	Super Wide, Mono Collapse, Wide Shimmer Top, Spectral Pan Split, Narrow Core Wide Halo, Decorrelated Wash

Levels don't matter; frequencies do. The imager is linear, so presets need no gain staging. After loading one, drag the band splits to where your material's parts sit, fine-tune each band's WIDTH, and check with MONO. No preset turns on SOLO or MONO.

Recipes

Step-by-step starting points. In each, finish by pressing [MONO] and listening for anything that disappears.

Keep the low end of a mix mono

1. Insert the imager on the mix bus or master and load **Mastering ▸ Bass Mono 100 Hz** (or **Mix Bus ▸ Mono Low End Bus**).
2. Solo band 1 with [SOLO] and listen; drag the [BASS MONO] edge on the STEREO FIELD until it sits just above your kick and bass fundamentals, usually 80–120 Hz.
3. Release [SOLO]. On the field, the area left of the edge should now be a thin line on C.
4. Press [MONO] and back: the low end should sound the same both ways.

Make a mono guitar stereo

1. Insert the imager on the mono guitar track as a mono-to-stereo plugin (see *Mono tracks*).
2. Load **Guitar ▸ Mono Guitar Spread**.
3. Raise [STEREOIZE] in bands 3 and 4 for more spread, or lower it for a subtler space. Keep band 1 and 2 low: [STEREOIZE] doesn't work under 150 Hz anyway.
4. Watch CORRELATION: it should fall from +1 toward +0.5 or so, never below 0. Press [MONO]: the guitar sounds exactly as the original.

Widen the top of a mix, safely

1. Load **Mix Bus ▸ Bus Gentle Wide** or **Mastering ▸ Gentle Top Width**.
2. Drag the split between bands 4 and 5 to where the presence and cymbals start (2–5 kHz).
3. Raise bands 5 and 6 [WIDTH] a few percent at a time, 110–130 % on a master.
4. Keep CORRELATION at +0.3 or above, and level-match with the Δ readings before you judge.

Fix a wide, phasey synth bass

1. Load **Mono Fix ▸ Wide Synth Bass Fix**.
2. Look at the STEREO FIELD: where the bass spreads into the out-of-phase zone, those frequencies are cancelling in mono.
3. Move [BASS MONO]'s edge up until the fundamentals sit on C (often 120–150 Hz), and lower band 2 and 3 [WIDTH] until the rest of the bass stops reaching the out-of-phase zone.
4. Press [MONO]: the bass should keep its weight. Switch back: it's still wide above.

Tuck vocal doubles around the lead

1. Insert the imager on the doubles' bus and load **Vocals ▸ Doubles Tuck In**.
2. Lower bands 3 and 4 [WIDTH] until the doubles sit just around the lead instead of out at the speakers.
3. To do the opposite, a wide backing stack, use **Vocals ▸ Backing Stack Wide**.

Re-centre a mix that leans

1. Watch BALANCE over a whole section. If it stays 0.5 dB or more to one side, load **Mono Fix ▸ Re-centre Left Lean** (the mix leans left) or **Re-centre Right Lean**.
2. Adjust the band ROTATE values until the image sits in the middle: the STEREO FIELD should look even above and below C, and BALANCE read close to C.

Tilt a piano by register

1. Load **Keyboards ▸ Keyboard Spread Tilt**: low notes lean left, high notes right, as the player hears it.
2. Reduce the band ROTATE values for a subtler tilt, or swap their signs for the audience's view.

Specifications

Type	Six-band stereo imager, linear phase
Channels	Stereo in and out, or mono in and stereo out
Latency	1152 samples at 44.1 and 48 kHz (2304 at 88.2/96 kHz, 4608 at 176.4/192 kHz), about 24 ms, constant, reported to the host; the host's bypass is delayed by the same amount
Transparency	With every band at 100 % and nothing else on, the output is the input, delayed, bit for bit
Band splits	Five crossovers, linear phase, 48 dB per octave, bands add back exactly; at least ×1.25 apart
Crossover 1 to 5	30–300 Hz (80 Hz), 80 Hz–1 kHz (250 Hz), 250 Hz–3 kHz (800 Hz), 800 Hz–8 kHz (2.5 kHz), 2.5–16 kHz (8 kHz)
WIDTH	0 to 200 % per band (default 100 %)
STEREOIZE	0 to 100 % per band (default 0 %); mono sum unchanged, never out of phase, fades out under 150 Hz
PAN	L 100 to R 100 per band (default C), equal-power balance
ROTATE	−45 to +45° per band, 0.5° steps (default 0.0°)
SOLO, MUTE	Per band; SOLO is left out of offline bounces and AudioSuite
BASS MONO, BELOW	On / off (default off); 20 to 500 Hz (default 120 Hz), 48 dB per octave on the side
MONO	Listen to the output in mono; left out of offline bounces and AudioSuite
Changes	Every setting crossfades over about 11 ms: no clicks
Displays	STEREO FIELD (20 Hz–20 kHz, L to R plus the out-of-phase zone, −84 to −6 dBFS); VECTORSCOPE with auto gain; CORRELATION and BALANCE over 300 ms
Metering	IN and OUT meters (sample peak, RMS); short-term and integrated loudness per ITU-R BS. 1770-4 / EBU R 128
Presets	74 factory presets in 13 folders, plus your own
Window	1440 × 940 points; resizable from 75 % to 200 %, saved with the session
Formats	VST3, Audio Units, standalone; AAX once signed
Plugin ID	Manufacturer Veir, plugin Vimg

Troubleshooting and questions

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

I don't see VEIRA 6-Band Stereo Imager in my DAW. Make sure VEIRA Manager shows SHOW (installed) for it, then rescan plugins in your DAW. In Logic Pro, open the Plug-in Manager and choose *Reset & Rescan Selection* if needed. Look under the manufacturer **VEIRA**.

WIDTH **does nothing.** The material is mono (or nearly) in that band, so there's no side to scale. On the STEREO FIELD its colour stays on C. Use STEREOIZE instead. On a mono track, check that the plugin is inserted as mono-to-stereo.

STEREOIZE **does nothing in the lows.** That's by design: it fades out under about 150 Hz, so it never widens the bass.

STEREOIZE **made a stereo recording narrower in places.** It's meant for mono and narrow parts. On a stereo recording, especially a spaced pair of microphones, the side it adds can partly cancel the side that's already there at some frequencies. Use WIDTH on stereo material.

My track is delayed when I monitor through the plugin. The linear-phase band splits need about 24 ms of latency. Your DAW compensates on playback, so everything stays in time, but while recording or playing live through the plugin you hear the delay. Insert the imager after recording, or bypass it while tracking (its bypass keeps the same delay, so the track stays in time).

My bounce sounds different from what I heard. Check SOLO and MONO: both are listening aids and are left out of offline bounces and AudioSuite, so a bounce always contains the full stereo output. MUTE is part of the sound and is bounced.

The STEREO FIELD shows red beyond L and R. Those frequencies are out of phase between the channels and will cancel in mono. A little on wide reverbs is normal. If it's a lot, or in the lows, see *Mono tracks and mono compatibility*.

Does the imager change my levels? Not in mono: WIDTH and STEREOIZE leave the mid exactly as it was. In stereo, widening adds side and narrowing removes it, so the stereo level moves a little (the factory presets keep it within 1.5 dB). Use the Δ readings to level-match before you compare with bypass.

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

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

Do my sessions keep my settings? Yes. Every control, the band splits, the selected preset and the window size are saved with your session, and every control, including the splits, can be automated.

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



VEIRA 6-Band Stereo Imager · User Manual · Version 0.2.1

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

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