# GHOST VECTOR

User Manual - FM, samples, vector motion and atmospheric FX


Ghost Vector is a hybrid vector/FM instrument built around four sound corners, animated movement, deep modulation and a TG-style interface. It is designed for glassy FM tones, sample-based atmospheres, slow evolving pads, strange keys, eerie digital choirs and playable cinematic textures.

### About this guide

This manual explains the main pages and musical workflow shown in the current interface screenshots. Exact host behaviour, install paths and plug-in format details depend on how your build is packaged.

# QUICK START

1. Load Ghost Vector in your DAW and choose a factory preset from the preset display in the top-right of the interface.
2. Play MIDI notes and open the Home page. The large vector display shows the current blend/drift movement across the four corners.
3. Use Mix Depth and the Drift controls to decide how strongly the corners move and detune against one another.
4. Open Corners to edit A, B, C and D. A and C are sample corners; B and D are FM corners.
5. Open Motion to animate blend and drift lanes. Use Sync and Loop for tempo-locked movement.
6. Open Mod to route macros, velocity, aftertouch, mod wheel, LFOs, blend and drift into destinations.
7. Open FX to shape the final sound with Unison, Ensemble, Delay, Reverb, Shimmer, Vector FX Morph and DAC/output character.

## Main Pages

| Page | Purpose |
|---|---|
| Home | Performance page with vector screen, drift monitor, macros, quick scenes, output and corner mix. |
| Corners | Detailed editing for the four sound sources. Sample corners contain source, filter, envelope, shape and pan EG controls. FM corners contain operator, algorithm and waveform controls. |
| Motion | Blend and Drift lanes for drawing or randomising movement over time. |
| Mod | Eight-route modulation matrix, micro-tuning and MIDI live monitor. |
| FX | Unison, Ensemble, Delay, Reverb, Shimmer, Vector FX Morph and output character/DAC voicing. |

### Workflow idea

Start with a preset, then change one corner at a time. After that, animate the sound with Blend/Drift lanes and finish with Vector FX Morph and Reverb. This keeps complex patches musical and avoids getting lost in too many moving parts.

# INSTRUMENT ARCHITECTURE

Ghost Vector is built around four corners: **A**, **B**, **C** and **D**. The corners are mixed through the vector engine, then shaped by motion, modulation and the FX page.

| Block | Role in the sound |
|---|---|
| A - Sample | Sample-based source for choirs, glass, plucks, pads, digital tones and textured attacks. |
| B - FM | FM voice corner with algorithm, operator waveform and modulation controls. |
| C - Sample | Second sample-based source. Useful for layering a contrasting texture, body, transient or air layer. |
| D - FM | Second FM voice corner. Useful for metallic harmonics, tines, bell partials, bass reinforcement or high spectral detail. |
| Vector blend | Controls the audible mix between the four corners. |
| Drift | Adds controlled instability, pitch spread and motion so patches feel less static. |
| Motion lanes | Automate blend and drift over time using editable lanes. |
| Mod matrix | Lets performance controls and internal movement reach many destinations. |
| FX bus | Final colour, space, width and character stage. |

- For clean playable sounds, keep the four corner levels balanced and use subtle motion.
- For stranger textures, combine slow blend motion with a small amount of drift and a coloured DAC mode.
- For very wide pads, use two sample corners for body and two FM corners for upper harmonics, then add Ensemble and a spacious reverb type.

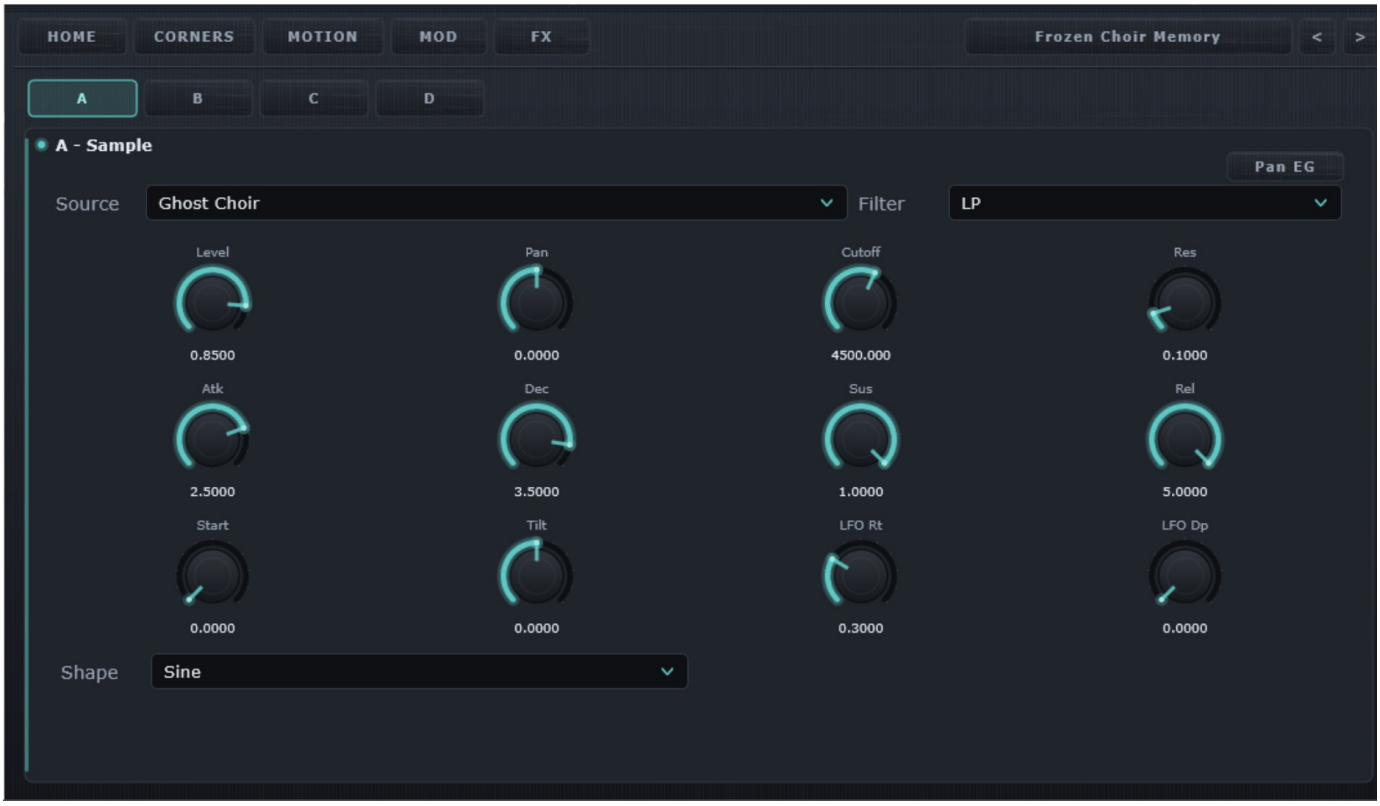
# HOME PAGE


*Home page with vector display, performance controls, drift monitor, quick scenes and corner mix.*

The Home page is the main performance view. It gives fast access to the live vector display, macro knobs, drift monitor, scene buttons, quality/output settings and the four-corner mix.

| Control | Use |
|---|---|
| Vector display | Shows the current blend movement and live overlay trace. The blue phosphor screen uses particle/film grain styling to make motion easier to read. |
| Live Overlay | Shows active movement over the vector display. Turn it off if you want a cleaner static view. |
| M1-M8 Macros | Performance controls intended for preset-specific movement, timbre and FX changes. |
| Performance sliders | Mix Depth controls how strongly the corner blend is applied. Drift X/Y, Drift Depth and Drift Spread control the instability and spread of the sound. |
| Drift Monitor | Small LCD-style display showing drift position, blend/drift coordinates and spread readout. |
| Quick Scenes | Store and recall four performance snapshots for fast variation within a patch. |
| Corner Mix | Sets level, pan and solo/mute for A, B, C and D. Use this to quickly isolate a corner while designing sounds. |

# CORNERS: SAMPLE SOURCES A AND C

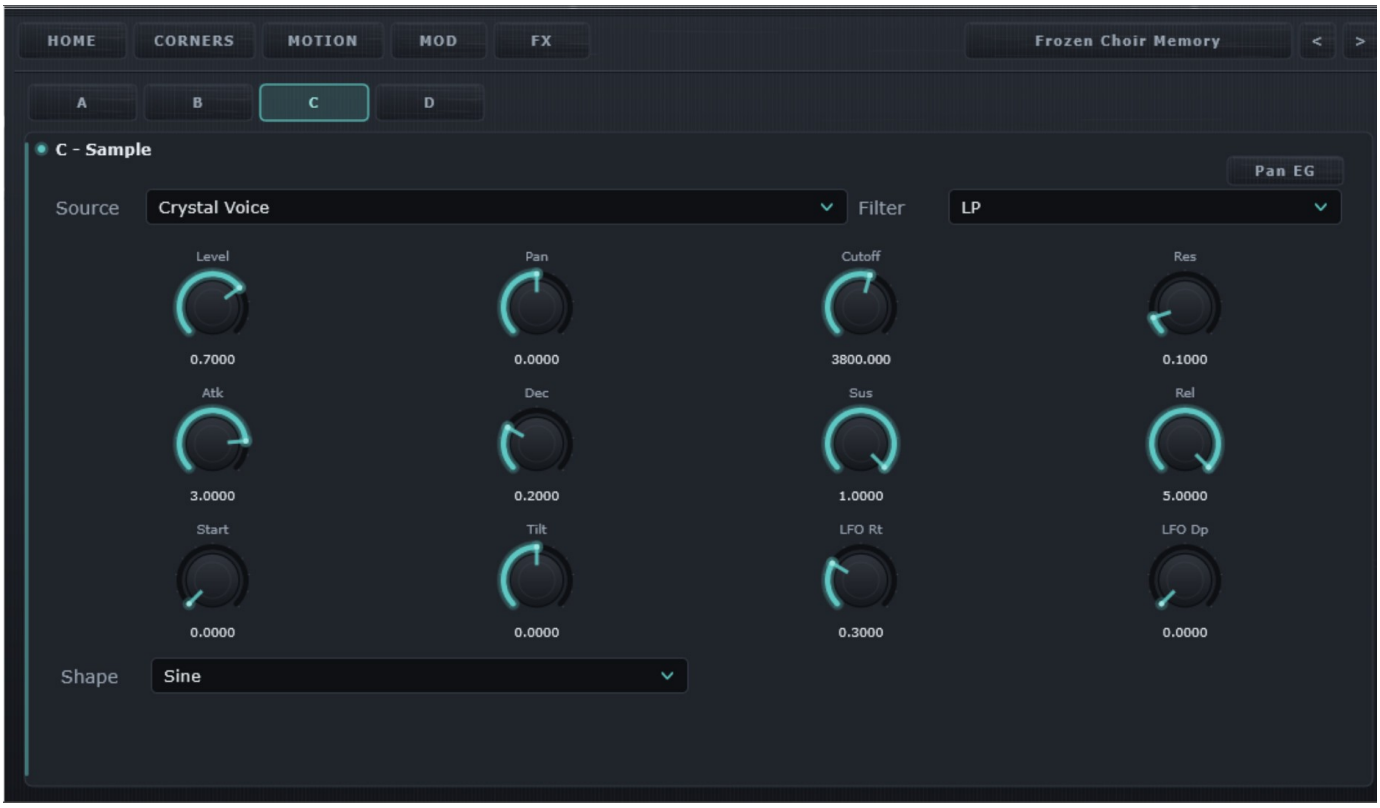



*Corner A sample page. A and C share the same core sample-source workflow.*

A and C are sample corners. They provide the tonal body of many patches: choirs, glass, tape-like tones, plucks, resonant sources, dusty keys and other hybrid source material.

| Sample control | Musical effect |
|---|---|
| Source | Chooses the internal sample type from the expanded source list. |
| Filter | Selects filter character. Beyond LP/HP/BP/Notch, the expanded list includes more vocal, body, glass and tilt-style options. |
| Level and Pan | Set the contribution and stereo position of the corner. |
| Cutoff and Res | Shape brightness and resonance. Higher resonance can make a source more vocal or synthetic. |
| Atk/Dec/Sus/Rel | Amplitude envelope. Slow attack and long release are useful for pads; short attack and shorter decay work for plucks and keys. |
| Start | Moves the playback start point, useful for removing attacks or finding hidden transient colours. |
| Tilt | Changes the spectral balance of the sample corner. |
| LFO Rt / LFO Dp | Adds internal movement to the sample corner without needing the modulation matrix. |
| Shape | Selects the motion/envelope shape for the sample corner. Expanded options add stepped, pulsed and drifting curves. |

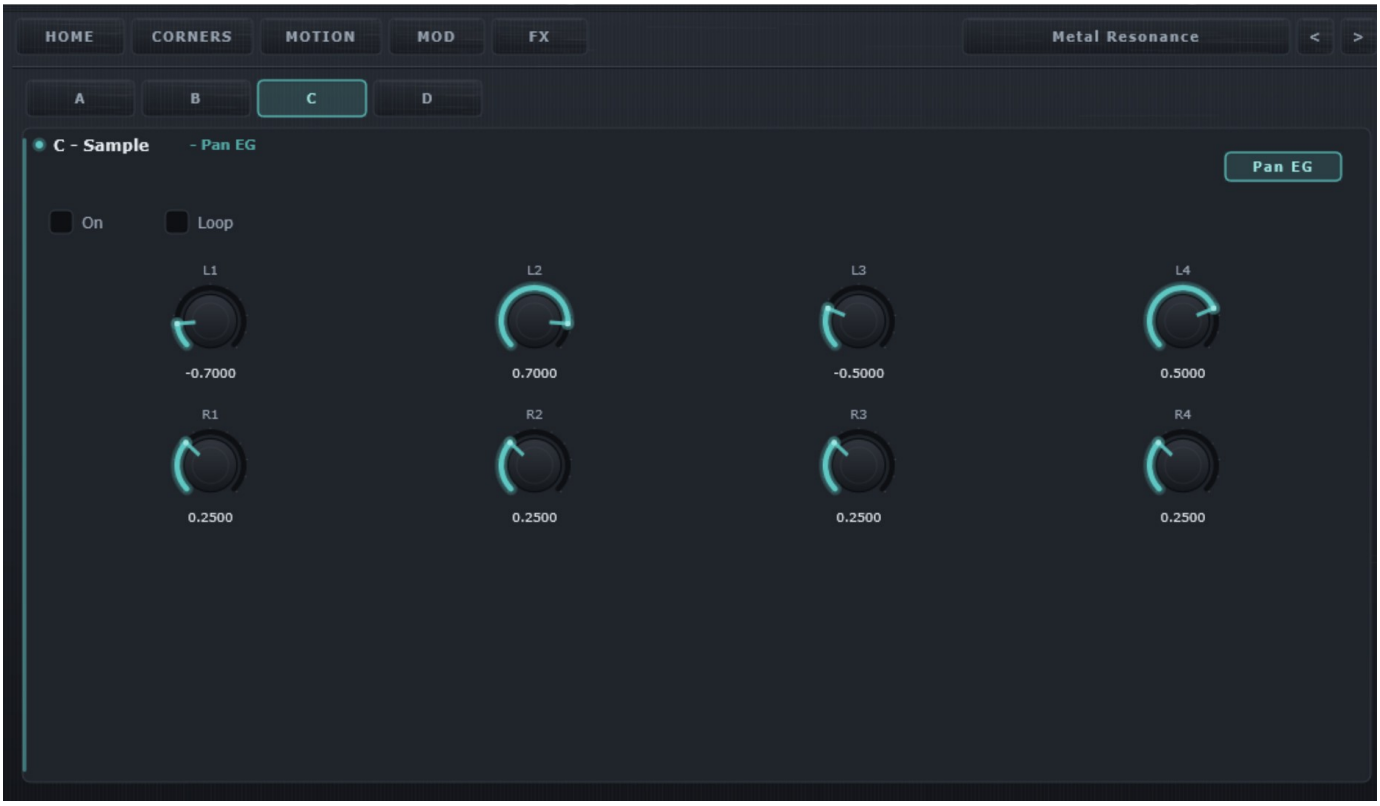
CORNERS: C SAMPLE SOURCE




*Corner C sample page showing source, filter, envelope and shape controls.*

- Use filter modes such as Body, Glass, Vowel, Hollow or Nasal for stronger source identity.
- Use Tilt and Cutoff together: Tilt changes broad balance while Cutoff shapes the filter response.
- Use slower envelopes on sample corners when FM corners are handling the attack or bright detail.
- Use Shape options to give static samples more phrasing and movement.

# PAN EG




*Pan EG page for shaping the stereo movement of a sample corner.*

The Pan EG page gives a corner its own stereo envelope. It can be used very subtly for width, or more obviously for animated movement across the field.

| Pan EG control | Use |
|---|---|
| On | Enables the pan envelope for the selected corner. |
| Loop | Repeats the pan movement, useful for rhythmic or drone-like patches. |
| L1-L4 | Pan levels/stages. Negative values move left; positive values move right. |
| R1-R4 | Rates/times for each pan stage. |
| Use cases | Slowly drifting pads, ping-pong plucks, stereo choir motion, subtle movement on sustained keys. |

# CORNERS: FM SOURCES B AND D

B and D are FM corners. They provide the metallic, glassy, bell-like, digital and harmonic side of Ghost Vector. They can be used as full voices or as a spectral layer blended behind sample corners.

| FM area | Use |
|---|---|
| Algorithm | Chooses the operator routing. The expanded algorithm list covers classic stacks, parallel pairs, cross/ring structures, formant stacks, ghost/noise structures and more unusual ladder/split behaviours. |
| Operator waveforms | OP1-OP4 can use expanded waveforms including classic AFM-style waves and newer folded, vowel, comb, bell, rotor, bowed and lo-fi shapes. |
| Ratios/tuning | Set harmonic or inharmonic relationships. Simple integer ratios are stable and musical; uneven ratios create bells and metallic tones. |
| FM depth | Increases sidebands and brightness. High values can become intense, so balance with filter, output and DAC modes. |
| Filters | Use the expanded filter list to tame or emphasise FM harmonics. |
| Corner level | If FM is only adding shimmer or attack, keep its level lower than the sample corners. |

- For playable keys, use moderate FM depth and a short attack.
- For TG-like digital bells, combine metallic operator waves with a plate or chamber reverb.
- For pads, reduce the FM corner level and let motion slowly bring the harmonics in and out.
- For bass reinforcement, use a lower FM corner level with a simple waveform and darker filter.

# MOTION PAGE: BLEND LANE


*Blend Lane page. The lane graphs animate the vector mix over time.*

The Blend Lane controls how the instrument moves between corners over time. It can create slow evolving pads, rhythmic timbral motion, or small variations that make a patch feel alive.

| Blend control | Effect |
|---|---|
| Enabled | Turns the lane on or off. |
| Free / Sync | Free runs in Hz. Sync locks the lane to musical time such as bars or divisions. |
| Loop | Repeats the lane instead of playing it once. |
| Rate / Time | Controls movement speed depending on free/synced mode. |
| Depth | Controls how strongly the lane affects the blend. |
| Smooth | Rounds the lane so movement is less stepped. |
| Human | Adds controlled imperfection and timing/shape variation. |
| Rnd Blend | Generates a new blend lane. Use Wild for more extreme results. |
| LCD readout | Shows lane mode, timing, phase, point count, depth and smoothing/human settings. |

# MOTION PAGE: DRIFT LANE


*Drift Lane page. Drift controls pitch/position instability and spread movement.*

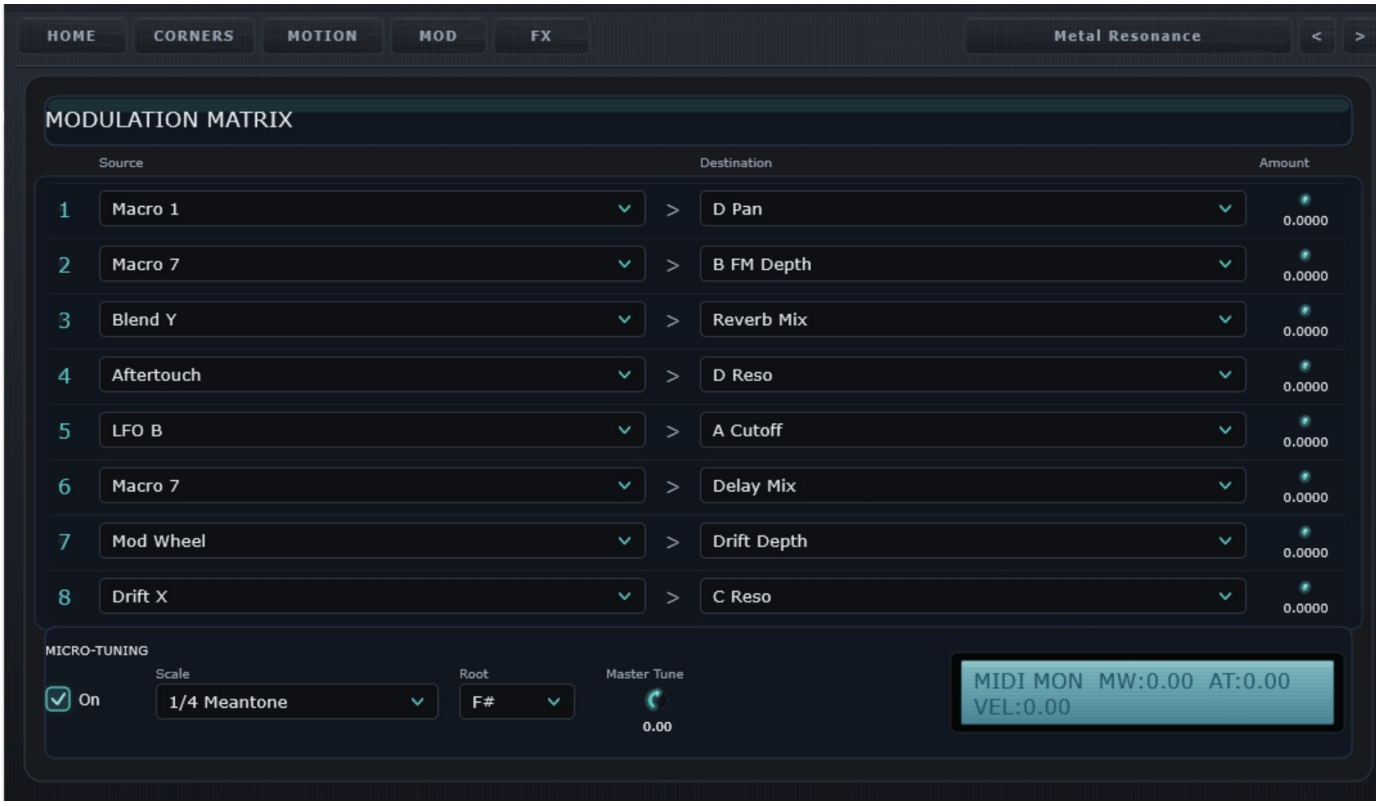
The Drift Lane works alongside the Blend Lane. Where Blend changes the corner mix, Drift adds controlled instability and spread. This is useful for making digital sounds feel less static without turning them into random noise.

| Drift control | Effect |
|---|---|
| Depth | Sets the overall strength of drift movement. |
| Spread | Controls pitch/spread range in cents. |
| Smooth | Softens jumps between lane points. |
| Human | Adds subtle irregularity. |
| Rnd Drift | Generates a new drift shape. With Wild off, results should stay more usable. |
| Right-hand XY view | Shows the resulting vector/drift trace as a hardware-style phosphor display. |

### Subtle drift is often enough

For playable patches, start with a small Drift Depth and a modest Spread. Big drift settings are best for drones, unstable textures and sound-design patches.

# MODULATION MATRIX




*Mod page with eight modulation routes, micro-tuning and MIDI monitor LCD.*

The Mod page provides eight modulation routes. Each row uses a source, destination and bipolar amount. This is where performance controls and internal movement become part of the patch design.

| Mod area | Use |
|---|---|
| Source | Choose a mod source such as Macro, Mod Wheel, Aftertouch, Velocity, LFO, Blend or Drift. |
| Destination | Choose what the source controls: corner levels, FM depth, filter cutoff/resonance, pan, FX mix, drift depth and other destinations. |
| Amount | Sets the modulation strength and direction. Positive and negative values can create opposite movement. |
| Micro-tuning | Select alternate scales and roots. Useful for strange pads, glassy keys and less familiar harmonic colours. |
| MIDI monitor | TG-style LCD readout for incoming modulation activity such as mod wheel, aftertouch and velocity. |

- Use velocity to open filters, brighten FM depth or alter corner balance.
- Use aftertouch for slow expressive changes such as shimmer, reverb mix or FM intensity.
- Use Blend X/Y or Drift X/Y as sources to make the vector engine influence the FX bus.
- Keep the first few matrix routes simple; complex patches are easier to control when each route has a clear purpose.

# FX PAGE


*FX page with Unison, Vector FX, Ensemble, Delay, Reverb and Shimmer.*

The FX page is the final sound-shaping section. It is designed to enhance the instrument rather than turn it into a separate multi-FX unit. Most effects are tightly connected to the vector/FM character of the patch.

| FX block | Role |
|---|---|
| Unison | Adds extra voices, detune, width and mix. Useful for wide pads, chorused keys and thicker hybrid tones. |
| Vector FX Morph | A performance macro that biases existing FX behaviour from the vector position. Modes include Vector, Bloom, Orbit and Glass. |
| DAC / Output Character | Final voicing selector. Clean is neutral; TG Glass, Warm DAC, 12-bit and Tape Dark add increasing colour or texture. |
| Ensemble | Chorus/ensemble width stage with mix, rate, depth, width, feedback, tone and vector drift. |
| Delay | Tempo-sync or free delay with filtering, feedback frequency, width, offset, drive and modulation. |
| Reverb | Algorithmic reverb with simplified musical names: Hall, Room, Plate, Chamber, Space and Cloud. |
| Shimmer | Adds pitched reverb-like harmonic lift or downward spectral weight depending on pitch setting. |

# REVERB, VECTOR FX AND DAC CHARACTER

The reverb names are intentionally simple so the user can choose by musical result rather than by technical reference. The modes are tuned to different sizes, densities, modulation amounts and tonal balances.

| Reverb type | Character |
|---|---|
| Hall | Broad, flexible space. Good default for pads and cinematic patches. |
| Room | Tighter and more immediate. Useful for keys, plucks and patches that need space without washing out. |
| Plate | Dense and bright. Good for bells, tines, synthetic keys and shimmered tones. |
| Chamber | Natural, rounded and less obvious than a huge hall. |
| Space | Large, wide and dramatic. Useful for ambient patches and slow motion lanes. |
| Cloud | Smooth animated tail. Works well with Vector FX Morph and drifting pads. |

The DAC/output character is best treated as a final colour choice. Use Clean while building a patch, then try TG Glass, Warm DAC, 12-bit or Tape Dark at the end. If a patch becomes too bright or aggressive, return to Clean or reduce FM depth, feedback and shimmer amount.

# PRESETS AND SOUND DESIGN

The preset browser is in the top-right of the interface, with previous/next buttons beside it. The factory bank is intended to show a range of playable keys, glassy FM tones, spectral pads, choir-like textures, basses and stranger digital atmospheres.

- Use presets as starting points. The quickest way to personalise one is to change one sample source, one FM waveform group, and one reverb/DAC choice.
- When a preset feels too busy, reduce Mix Depth or temporarily mute corners from the Home page.
- For more mystery without losing playability, add subtle Blend motion rather than extreme randomisation.
- For stronger vintage digital colour, try TG Glass or Warm DAC before using 12-bit or Tape Dark.
- For atmospheric patches, combine Cloud/Space reverb with slow blend motion and a small amount of drift spread.

## Three quick patch recipes

| Patch type | Starting recipe |
|---|---|
| Glassy FM Key | Use a clean sample corner for body, a metallic FM algorithm in B, short attack, moderate FM depth, Plate reverb and TG Glass output. |
| Slow Choir Pad | Use choir/tape/vowel sample sources in A and C, low FM levels for shimmer, slow Blend lane, Cloud reverb and subtle Ensemble. |
| Unstable Archive Drone | Use long envelopes, Drift lane enabled, Space or Cloud reverb, a darker filter mode and Warm DAC or Tape Dark. Keep output trim conservative. |

# TROUBLESHOOTING AND PRACTICAL TIPS

| Issue | What to check |
|---|---|
| No sound | Check the corner levels and mutes on the Home page. Confirm the preset has at least one active corner and that output is not too low. |
| Patch is too bright or harsh | Lower FM depth, filter cutoff, resonance, Shimmer amount or Delay feedback. Try Warm DAC or Tape Dark only after the main level is stable. |
| Sudden level bursts | Reduce Delay Feedback, Ensemble Feedback, Reverb Size/Mod and Shimmer amount. Very high feedback-style settings can build energy quickly, especially with bright FM material. |
| Too much movement | Lower Mix Depth, Drift Depth, Spread or the lane Depth control. Disable Wild randomisation for more controlled lanes. |
| Preset sounds too wide | Reduce Unison width, Ensemble width, Delay width or corner pan spread. |
| CPU/load concerns | Reduce Unison voices, use Normal/Eco quality where appropriate, and avoid stacking very dense reverb/shimmer settings on every patch. |

## Glossary

| Term | Meaning |
|---|---|
| Corner | One of the four sound sources A, B, C or D. |
| Vector | The blend position between the four corners. |
| Drift | Controlled instability, detune and spread around the vector sound. |
| FM | Frequency modulation synthesis: operators modulate one another to create complex harmonics. |
| Algorithm | The routing structure for FM operators. |
| Operator waveform | The waveform used by an FM operator before it modulates or becomes audible. |
| DAC mode | A final output character/colour stage inspired by converter and hardware tone rather than a separate effect. |
| Motion lane | A drawable/randomisable lane that changes Blend or Drift over time. |

# CLOSING NOTES

Ghost Vector is strongest when it is treated as a performance instrument rather than a static preset player. Its sound comes from the interaction between four corners, motion lanes, FM harmonics, sample colour, modulation routes and the final FX/DAC character.

- Build simple patches first, then add motion.
- Use the Home page to keep the four corners balanced.
- Use the Mod page for expression rather than constant movement everywhere.
- Use the FX page to place the sound in a space and give it a final hardware-like colour.