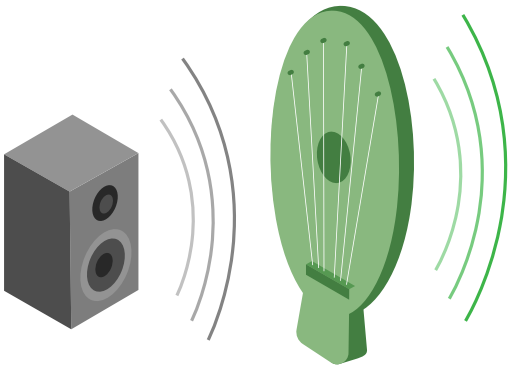
Kinotone

ghosts

Chordal Resonator



About Ghosts

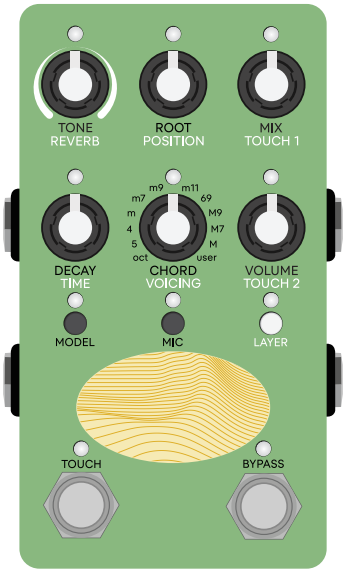
At the heart of Ghosts are mathematical models of 6 strings, tubes, or bars that can be tuned to chords.

Ghosts is an audio effect, a polyphonic instrument, or a hybrid of both.

Excite the resonators with your input and hear them bloom into strange, harmonically rich textures. Play Ghosts as a full-on physical modeling instrument — dial in a harpsichord, a xylophone, a pipe organ, or something entirely new and imagined. There's also a middle ground to explore, blending your input audio with the precision of MIDI notes.

The contact mic adds a playful, tactile dimension, and the Touch Modes offer a toolkit for transforming the resonators in powerful and surreal ways.

Thank you so much for supporting Kinotone — we hope you enjoy Ghosts.



Online manual and help

The purpose of this guide is to cover Ghosts' **core features** and help you learn its basic controls. Content reflects firmware version **1.0**.

Our **online manual** covers advanced topics in depth, including MIDI, CV, and expression control. You can find it at **kinotoneaudio.com/ghosts-manual**

Have questions? Join the Kinotone community to connect with us and other users at **forum.kinotoneaudio.com**

For direct support email **support@kinotoneaudio.com**

Contents

Getting Started

POWER

Use an isolated +9VDC center-negative power supply rated for at least 220 mA.

IN / OUT

Ghosts passes a **mono in / mono out** signal by default. Mono as the default setting ensures all users hear all 6 resonators right out of the box.

To pass a stereo signal, set Ghosts to **stereo in / stereo out** and use **TRS cables** (pg. 39).

To split a mono input into stereo, set Ghosts to **mono in / stereo out**.

LEVELS

Ghosts defaults to **instrument level**, which is ideal for guitar and a wide range of other setups.

You can set Ghosts to **line level** if you need more output level, or if you find the built-in limiter on the instrument level setting too restrictive.

Use the **BYPASS footswitch** to engage or disengage Ghosts. If the BYPASS LED is ON, effects are engaged.

Ghosts Basics

Ghosts is a surprisingly simple device to use. There are just a few concepts you'll want to know about right away:

- Using the LAYER button.
- Visual feedback and how relative knobs work.
- The TOUCH footswitch. This is a unique feature where you get to choose what it does.

LAYER button

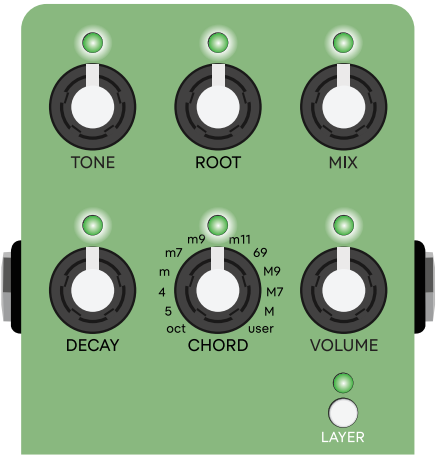
Tap the LAYER button to select between editing black and white knob controls.

The **LAYER LED** lights up when you are on the white layer.

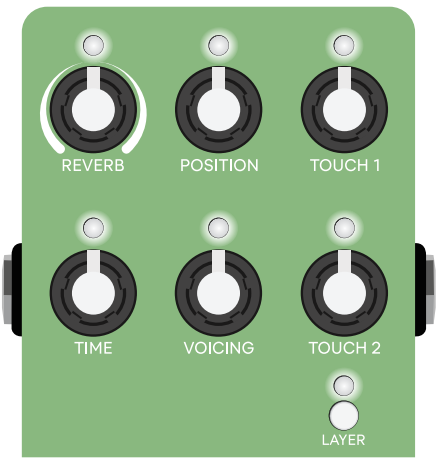
Visual feedback

- **Black controls** glow a gradient of **green**.
- **White controls** glow a gradient of **white**.

Each control has its own LED that conveys the real-time intensity of the setting, changing in brightness as you rotate the knob.



BLACK CONTROLS



WHITE CONTROLS

Relative knobs

When you switch between editing black and white controls, the physical knob position might not line up with the real-time setting.

When this happens, **the control becomes relative**, meaning the knob adjusts the parameter based on the amount of space available until they catch up and start tracking again.

We do this intentionally to avoid sudden jumps during live use.

It sounds complicated but it's really simple — just use your eyes and ears when adjusting the controls.

Ghosts remembers your settings between power cycles. It saves state 3 seconds after LAYER, MIC, MODEL, or BYPASS is pressed.

A tip to guarantee an **exact setting match** on the next power-up:

Tap **LAYER** twice (so you're right back on your desired control layer), then wait 3 seconds before removing power.

If you'd like to **reset the knob controls** to default settings, **load the INIT preset** (pg. 30).

TOUCH footswitch

The TOUCH footswitch engages your selected Touch Mode.

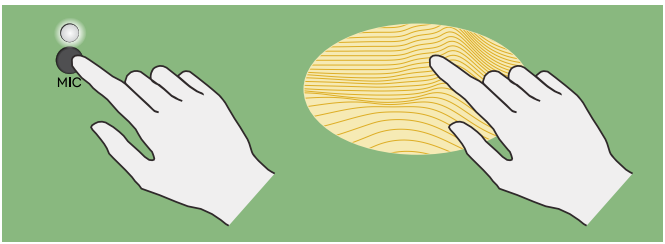
This can be a granular processor, a varispeed looper, a drum machine, or a frequency shifter.

The footswitch responds to **latched or momentary presses**. You can use it for “always on” effects — or quick performance effects.

Each Touch Mode has two main knob controls (TOUCH 1 and TOUCH 2 on the white layer).

Touch Modes are covered in their own section, but this footswitch is a core part of Ghosts’ interface.

Contact Microphone



Ghosts has a built-in contact microphone that lets you play the resonators directly. Try strumming the oval pattern to excite them with tactile vibrations.

MIC button

Tap the MIC button to toggle the mic ON or OFF.

The **MIC LED** lights up to show you if it's engaged.

When the mic is OFF — or if Ghosts is bypassed — the mic is **completely disconnected** from the signal path.

When external audio is connected to Ghosts, **the mic gets mixed with your input audio** in the analog domain. You can also use the mic on its own, with nothing plugged into the input.

Turn MIX all the way up for the full effect of the mic. At lower MIX settings, you'll hear more of the raw contact mic sound.

Mic sensitivity

If you'd like the mic to be more or less sensitive, use the **MIC GAIN** control (pg. 17).

At higher GAIN settings — especially at line level — **the mic is very sensitive, so be careful how you use it**.

The entire device transforms into a microphone and it will capture even tiny gestures like tapping the buttons.

In our launch video we placed Ghosts on a snare drum and used the contact mic to pick up vibrations and excite the resonators.

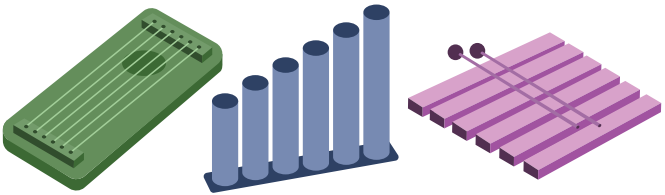
While this was certainly fun, we haven't stress-tested this use case and can't promise that it won't affect the electronics over time.

So — we don't officially encourage this!

If placing Ghosts on drums is your primary use case, we recommend connecting an external contact microphone.

This achieves the exact same effect, and you can pick one up for less than the cost of lunch.

Physical Models



At the core of Ghosts are mathematical models of 6 strings, tubes, or bars that you can excite and transform in real-time. These are the "resonators" — they can produce anything from lifelike, acoustic tones to strange and otherworldly sounds.

MODEL button

Tap the MODEL button to choose your resonator type.

The **MODEL LED** indicates your selection:

STRINGS (green LED)

Based on the **Extended Karplus-Strong** algorithm. Compared to standard Karplus-Strong, this model more accurately captures the sound and behavior of real strings by adding damping, and the ability to adjust the excitation position.

Strings produce *harmonic* frequencies, meaning overtones that are whole-number multiples of the fundamental pitch.

TUBES (blue LED)

A type of **modal resonator**. Ghosts emulates modal resonance using a bank of 18 virtual-analog band-pass filters per voice (that's 108 band-pass filters in total!).

Unlike plucking a string, striking a tube produces *inharmonic* frequencies, or tones that are not whole-number multiples of the fundamental pitch, which gives them a rich and complex character.

BARS (pink LED)

Another **modal resonator**. Like tubes, bars produce *inharmonic* frequencies, but the overtones are more widely spaced and detuned, resulting in a brighter sound.

Because of its harmonic content, **STRINGS is the most universally pleasing model** on a wide range of input material.

TUBES and **BARS** pair especially well with percussive sounds, the contact mic, and the internal exciter (PLUCK / STRIKE or AIR).

Knob Controls

The pitches of the 6 strings, tubes, or bars are tuned to chords, and you can use the various controls to shape their character — from tone and decay to excitation position and more.

MIX

Controls the **balance between your input signal and the output** of the resonators.

VOLUME

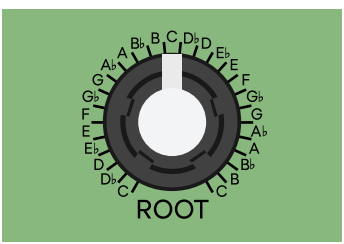
Controls the **overall output level of the wet signal**. Resonators can get notoriously loud — use this control to keep levels in check.

CHORD

Re-tunes the resonators in real-time, with 12 preset chords to select from.

ROOT

Adjusts the root note of your selected chord, quantized to semitones. Middle C is at 12 noon, and you can pitch shift +/- an octave from there.



VOICING

Inverts and transposes your selected chord, letting you rearrange notes and push the chord into different ranges of the frequency spectrum.

Let your ear guide how CHORD, ROOT, and VOICING are tuned. With a bit of intention and careful listening, Ghosts is a powerful harmonic companion.

Overwhelmed by the chord options?

Try keeping the CHORD knob tuned to **octaves** or **fifths**, then set your root note. You'll find more flexibility in what you can play while still staying in tune with the resonators.

TONE

Controls the **brightness of the resonators**. Simultaneously adjusts a low-pass filter on your input audio, and the high-frequency decay of the physical models. The resonators are brightest at fully clockwise. For additional tone control, use the INPUT FILTER (pg. 17).

DECAY

Adjusts the **decay time of the resonators**. At max decay, they sustain infinitely.

Setting DECAY to zero bypasses the resonators.

This allows you to use the reverb or any of the Touch Modes independently.

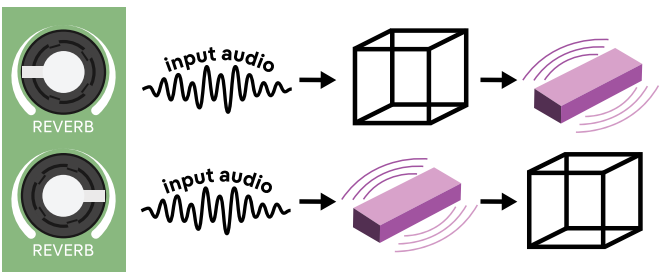
REVERB

Controls the **reverb mix + placement**, so the amount of reverb, and whether it's placed pre- or post-resonators. If you're playing Ghosts as an instrument with the internal exciter (PLUCK / STRIKE or AIR), place the reverb ***post***.

Let the space excite the model — or let the model excite the space.

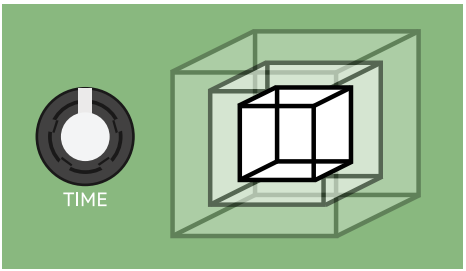
Placing the reverb ***pre*** smears the input, creating a soft, cloudy drone that stirs the resonators.

Placing it ***post*** provides greater spatial definition, which is ideal for a more traditional reverb effect.



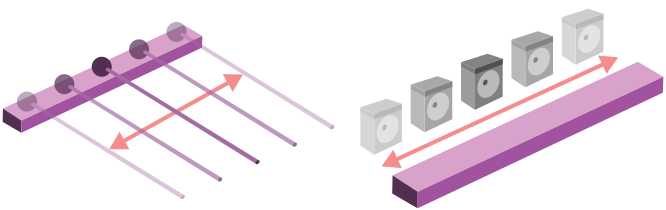
TIME

Controls the **decay time of the reverb**. At max decay, it sustains infinitely.



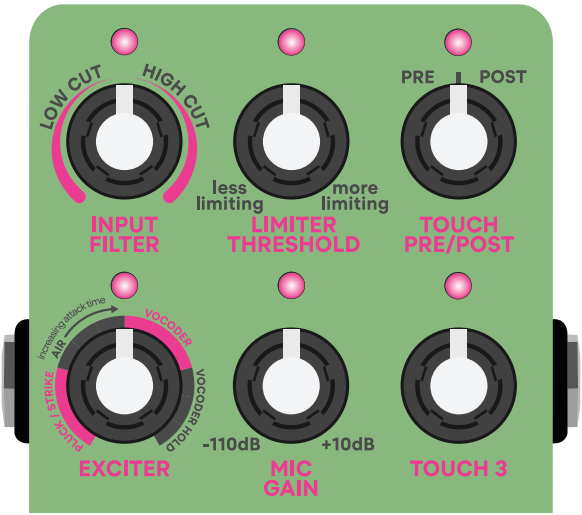
POSITION

A model-dependent control that sets the **physical excitation point** along the resonators. This adjusts which harmonic overtones are emphasized.



TOUCH 1 and **TOUCH 2** are the Touch Mode controls. We'll cover those shortly.

Hidden Layer



There is a third layer of knob controls that provide some additional utilities. For the most part these are *set it and forget it* settings.

Accessing hidden controls

Hold LAYER + tap MIC to enter the hidden layer.

The LEDs **light up pink** to indicate that you're editing hidden controls. **Tap LAYER to exit**.

INPUT FILTER — TOP LEFT

An input low-cut or high-cut filter to sculpt your incoming audio before it hits the resonators. Adjust this control in relation to your particular setup.

A tip for guitar players:

Try engaging the input filter a bit left of noon to roll off some low-end.

This results in the upper harmonics of your instrument exciting the resonators instead of the fundamental — reducing harmonic buildup and leaving you with a more focused sound.

LIMITER THRESHOLD — TOP CENTER

A brick wall output limiter to tame the resonators. Turn up this control if you experience unwanted volume spikes. The limiter is always engaged but set to the minimum by default.

MIC GAIN — BOTTOM CENTER

Adjusts the gain of the contact microphone. The range is different for instrument level and line level, but between about 12 noon and 2 o'clock is generally a sweet spot.

The mic is extremely sensitive at high GAIN settings! Experiment with caution to protect your hearing and avoid feedback.

EXCITER — BOTTOM LEFT

Selects the exciter type. This control applies if you are using **MIDI notes** to play Ghosts as an instrument.

TOUCH PRE / POST — TOP RIGHT

Touch Modes can be placed before or after the resonators, with *pre* as the default setting. Use this control to toggle the placement.

TOUCH 3 — BOTTOM RIGHT

Provides an **optional utility** for each Touch Mode:

TERRAZZO — Dry / wet mix
ENDLESS LOOP — Loop volume
RHYTHM GENERATOR — Drum volume
SHEPARD SHIFTER — Dry / wet mix

Touch Modes

The Touch Modes offer a versatile collection of tools and effects surrounding the physical models. All Touch Modes can be placed pre- or post-resonators, and can be synced to MIDI clock.

Touch Mode controls

What the TOUCH footswitch does depends on which Touch Mode you choose.

TOUCH 1 and **TOUCH 2** provide the knob controls.

Hold the LAYER button while tapping TOUCH to choose a Touch Mode.

The **TOUCH LED** indicates your selection:

TERRAZZO (green LED)
ENDLESS LOOP (red LED)
RHYTHM GENERATOR (blue LED)
SHEPARD SHIFTER (pink LED)

Footswitch behavior

You can latch the TOUCH footswitch or engage it momentarily. These have different use cases.

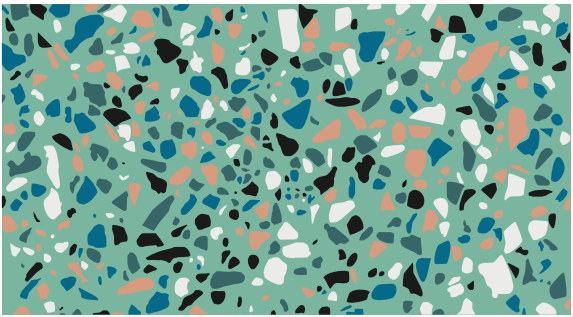
- **Latching** — Quick tap TOUCH to engage, then tap again to disengage. Latching is for **"always on" effects**.

- **Momentary** — Keep TOUCH held down to engage, then let go to disengage. Momentary presses are great for **brief performance effects**.

To use a Touch Mode as a stand-alone tool, set **DECAY** to zero to bypass the resonators.

For **ENDLESS LOOP**, if you'd like your loop to continue playing when you bypass the pedal, set Ghosts to **buffered bypass with trails** (pg. 40).

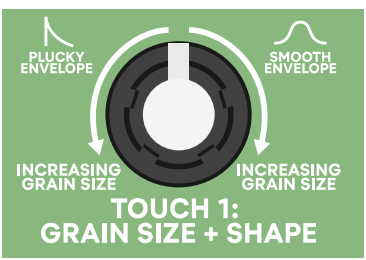
TERRAZZO



Terrazzo is a streaming granular processor that disassembles sound into colorful fragments and binds them into new forms. 6 read heads spread across the stereo field — some play forward, or reversed, some at normal speed, some an octave up.

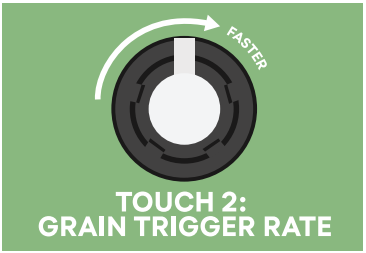
TOUCH 1 — GRAIN SIZE + SHAPE

Left from noon produces **plucky** grains that increase in size. Right from noon produces **smooth** grains that increase in size. Grain size ranges from 100 msecs to 3 seconds.



TOUCH 2 — GRAIN TRIGGER RATE

Provides a **clock pulse**. As you twist the knob clockwise, grains trigger faster.



Grain size and trigger rate interact in a cool way that creates some really interesting and varied effects.

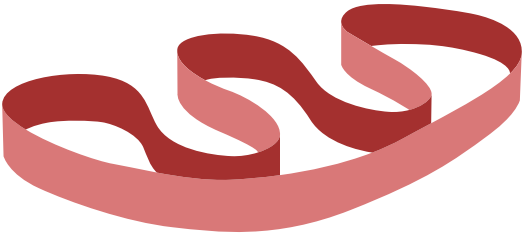
When grains are shorter than the clock pulse, they re-trigger in sync, producing tremolo-like sounds.

Set TOUCH 1 and TOUCH 2 around noon for a tremolo effect.

As grain size exceeds the clock pulse, grains start firing on different clock edges, creating bouncy syncopated rhythms.

As you push the grain size further, more abstract and free-flowing patterns emerge.

ENDLESS LOOP



Endless Loop is a simple varispeed looper, capable of infinite overdubs. It's an input looper by default — perfect for capturing incoming audio or the contact mic and transforming it into rhythmic gestures that excite the resonators. See our online manual for some best practices when syncing the looper to MIDI clock.

There are two ways to record:

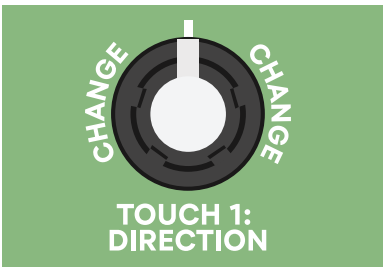
- **Quick tap TOUCH** to start recording — then **tap again** to stop.
- **Hold down TOUCH** to record — then **release** to stop.

When recording the **initial loop**, the TOUCH LED turns **solid red**. This first write sets your loop length. From recording, Ghosts switches to **overdubbing**, indicated by a **glowing red LED**. From overdubbing, pressing the footswitch again switches to **playback**, indicated by a **blue LED that ramps in brightness** as your loop plays from start to finish. You can re-engage the footswitch at any time and overdub endlessly.

Double tap TOUCH to stop playback and erase your loop.

TOUCH 1 — DIRECTION

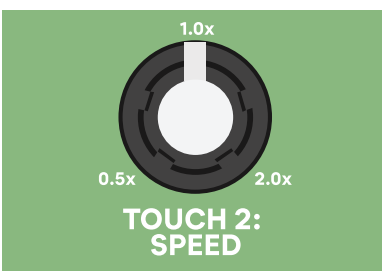
This knob works just like **bi-directional recording** on a tape player. You can record and play in both directions.



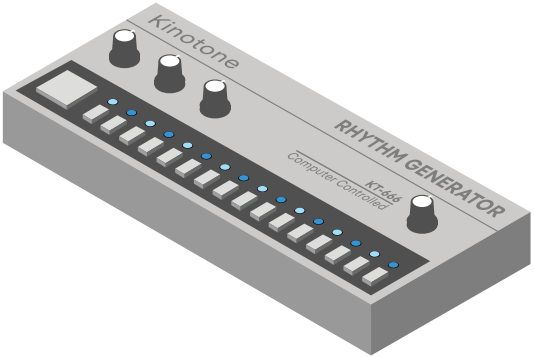
TOUCH 2 — SPEED

Use this control to **pitch shift your loops**. Speed varies continuously from 0.5x to 2x, and impacts maximum loop length.

Record up to **40 seconds** at 0.5x speed, **20 seconds** at 1x speed, or **10 seconds** at 2x speed.



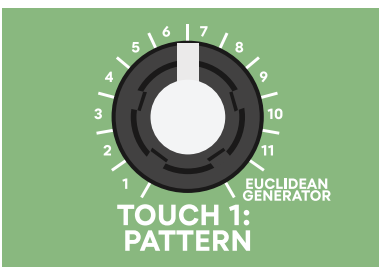
RHYTHM GENERATOR



Rhythm Generator is a virtual-analog model of a legendary 1981 drum machine with punchy analog resonator circuits. Resonators to excite resonators! Kick, snare, hi-hat. Real-time synthesis (no samples).

TOUCH 1 — PATTERN

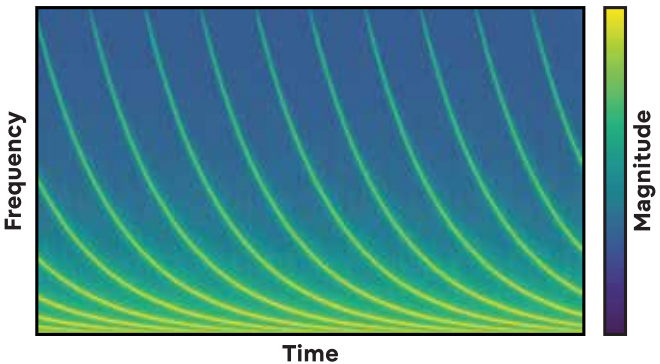
Selects between **11 curated patterns** and a 12th **Euclidean random** notch. The 12th notch algorithmically generates a brand new pattern each time it's re-selected.



TOUCH 2 — TEMPO

Adjusts the tempo of the drum pattern.

SHEPARD SHIFTER



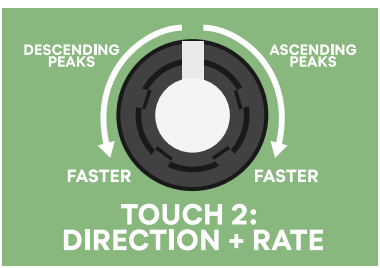
Shepard Shifter creates an auditory illusion of endlessly rising or falling spectral peaks, emphasizing different frequencies in the resonators. It's a virtual-analog Bode frequency shifter — designed to move deliberately slowly like a phaser or flanger.

TOUCH 1 — INTENSITY

Controls the intensity of the effect.

TOUCH 2 — DIRECTION + RATE

Left from noon creates **descending** peaks that accelerate as you turn further. Right from noon creates **ascending** peaks that accelerate as you turn further.



Try pairing Shepard Shifter with the **contact mic** (*pre-resonators*) to create bubbly pan drum sounds.

Touch Modes pre / post

When using Ghosts with external audio or the contact mic — Touch Modes can be placed before or after the resonators.

Pre is the default setting. Use the **TOUCH PRE / POST** control to toggle the placement (pg. 17).

If you're playing Ghosts as an instrument with the **internal exciter** (PLUCK / STRIKE or AIR), Touch Modes are **automatically shifted to the output**.

TERRAZZO

PRE-RESONATORS — When placed *pre*, Terrazzo **becomes the exciter**. The 6 strings, tubes, or bars respond to the grains, with each fragment plucking, striking, or brushing up against them. This lets you turn any sound into a texture that feels organic and alive.

POST-RESONATORS — When placed *post*, Terrazzo **processes the output of the resonators**. The resonators generate a tone which Terrazzo shatters and reassembles into a new audio stream. This tends to yield a more synthetic and electronic sound.

ENDLESS LOOP

PRE-RESONATORS — When placed *pre*, Endless Loop is an **input looper**. After recording a loop, you can tweak the resonators in real-time while it plays back, adjusting their tone, decay, tuning, etc.

POST-RESONATORS — When placed *post*, Endless Loop is an **output looper**, which lets you capture the processed output of the resonators. This is ideal for building up layered overdubs with different models, pitches, voicings, etc.

RHYTHM GENERATOR

PRE-RESONATORS — When placed *pre*, Rhythm Generator gets mixed with the input signal, and **the drums excite the resonators**. You can turn percussive sounds into vibrant, tuned patterns and reshape them on-the-fly.

POST-RESONATORS — When placed *post*, **the drums are mixed after the resonators**. Your input audio continues to run through the resonators, while the drums stay clean and defined.

SHEPARD SHIFTER

PRE-RESONATORS — When placed *pre*, Shepard Shifter **creates spectral peaks in your input audio** that move across the frequency spectrum of the resonators, exciting different overtones as they go. This effect is only apparent when audio is being fed into the input.

POST-RESONATORS — When placed *post*, Shepard Shifter **creates spectral peaks in the resonator output**. This provides a more synthetic, lingering sound that continues even after the input has stopped, as the frequency shifter emphasizes the resonators' overtones while they decay.

Presets

Ghosts has 6 onboard presets, and you can save up to 32 via MIDI. The factory presets showcase a variety of sounds Ghosts is capable of — exploring them is a great way to spark ideas when you're starting out.

Loading presets

Hold the LAYER button for 3 seconds to enter the Presets Bank.

A single LED lights up — now you can tap LAYER to toggle through 6 slots, indicated by the **MODEL**, **MIC**, and **LAYER LEDs** (from left to right).

Preset slots 1–3 are red
Preset slots 4–6 are blue

Hover over a slot and **tap TOUCH to load**. The LEDs will briefly glow a unique color. The preset that you load becomes your live settings.

If you want to **load another preset**, hold LAYER again for 3 seconds, toggle to the slot you want to hear, and tap TOUCH to load.

Factory presets

1. INIT — HOME BASE
Resets all knob controls to default settings
Touch Mode: TERRAZZO

2. DARK SHIFTER *
Touch Mode: SHEPARD SHIFTER

3. STRING LOOPS
Touch Mode: ENDLESS LOOP

4. GLITTER PHYSICS *
Touch Mode: TERRAZZO

5. HARMONIC PULSE *
Touch Mode: RHYTHM GENERATOR

6. SPARKLE SHIFTER *
Touch Mode: SHEPARD SHIFTER

For presets marked with an asterisk (*), engage the TOUCH footswitch to hear the full effect.

Our **online manual** describes settings for each preset, including its unique ***user*** chord and scale.

The web manual also has **factory reset** instructions for restoring the factory presets.

Saving your settings

To overwrite a preset with your live settings, enter the Presets Bank (hold LAYER for 3 seconds), then tap LAYER to toggle to the slot you want to overwrite.

Tap BYPASS twice to confirm and save. To exit without loading or saving, simply hold LAYER again for 3 seconds.

NOTE: The INIT preset cannot be overwritten.

Physical Modeling Instrument

Connect a MIDI keyboard to Ghosts, and it becomes a 6-voice physical modeling instrument. Dial in a cello, a zither, a marimba — or engage a Touch Mode to push things into stranger territory.

You can also **use Ghosts like a vocoder**, shaping the input signal into resonant, playable tones.

This works by sending **MIDI notes.**

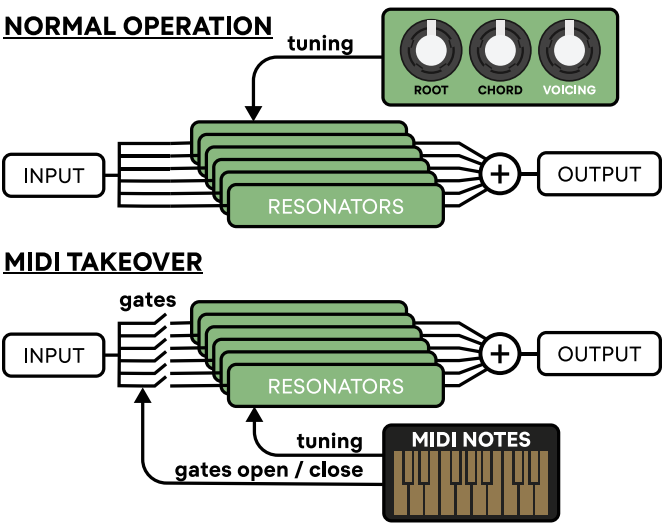
Ghosts automatically detects **TRS MIDI Type A** and **Type B** connections. See our online manual for more information about connecting your device.

When playing Ghosts with MIDI notes, there are a few key concepts to understand:

- Input gating and MIDI takeover.
- How to “wake up” the tuning controls when you are done sending MIDI notes.
- The different exciter options and what they offer.

Input gating and MIDI Takeover Mode

When Ghosts receives MIDI notes, it enters MIDI Takeover Mode.



In MIDI Takeover Mode, a few things are happening:

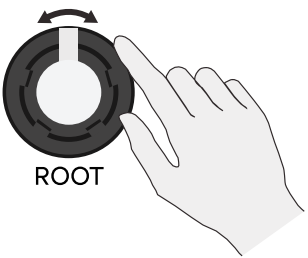
The input signal is gated by default. Incoming audio and the contact microphone are muted unless a MIDI note is held.

CHORD, ROOT, and VOICING are bypassed. Ghosts is no longer listening to these settings — you have *complete control* over the resonator tuning with the notes you play.

We mute the input by design. Without gating, all 6 voices would be constantly reacting to the input, creating a chaotic 6-note drone and making it impossible to play clear melodies.

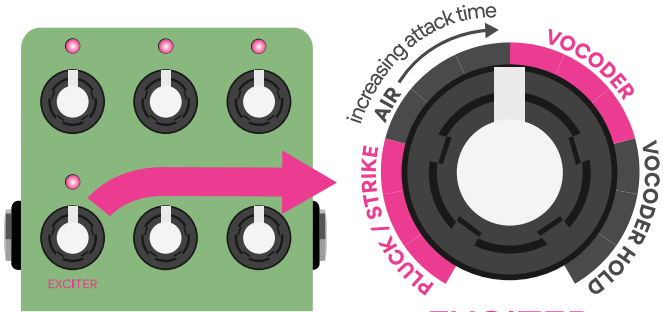
If you'd like to play MIDI notes and have them hold until you play different notes, try **VOCODER HOLD**.

Exiting MIDI Takeover Mode



To exit MIDI Takeover Mode, twist the ROOT knob. This tells the resonators to resume listening to the CHORD, ROOT, and VOICING knobs.

Exciter options



Hold LAYER + tap MIC to access the EXCITER control. Tap LAYER to exit.

The exciter is what sets the resonators in motion. It's the hand that plucks a string, the mallet that strikes a bar, or the air moving through a tube.

But your **input audio** or the **contact mic** can also be the exciter.

The **EXCITER** control determines **how Ghosts responds** when you send it MIDI notes.

PLUCK / STRIKE or AIR
internal exciter

PLUCK / STRIKE or **AIR** are the **internal** exciter options.

If the EXCITER control is set to either of these positions, the internal exciter is ON.

When set to PLUCK / STRIKE or AIR, the MIDI notes you play re-tune the resonators and excite them simultaneously. No external audio required — just MIDI notes.

PLUCK / STRIKE

STRINGS are plucked. **TUBES** and **BARS** are struck.

AIR

A breath-like excitation that can be used across all models. Twisting the knob clockwise within the AIR region **increases the attack envelope time**.

When using PLUCK / STRIKE or AIR, **Ghosts is a complete instrument rather than an audio effect**.

Try experimenting with the physical models, as well as tone, decay, and position settings to emulate a wide variety of acoustic instruments.

Twist the ROOT knob to resume using Ghosts as an audio effect.

VOCODER or VOCODER HOLD

input signal exciter

VOCODER and **VOCODER HOLD** let your **input audio** or the **contact mic** excite the resonators.

If the EXCITER control is set to either of these positions, the internal exciter is OFF.

When set to VOCODER or VOCODER HOLD, the MIDI notes you play re-tune the resonators, while the input is what excites them.

VOCODER

When you send Ghosts a MIDI note, it re-tunes a resonator voice and opens its gate, allowing the input to excite it. When you release the note, the gate closes and the resonator decays naturally.

VOCODER HOLD

In this scenario, **you can lift your fingers off the keys, and the notes will be held until you play new ones** (the input won't be muted between phrases).

For example, if you hold down C–D–E–F–G–A then release the keys, the resonators will be tuned to those notes and your input audio is free to excite them.

You don't need to press all the notes at once though — as long as one is held, you can add more to the stack. When a seventh note is played, the oldest note is replaced by the newest. If you release all notes and then play a chord, Ghosts clears the previous stack and holds only the new notes.

When using VOCODER or VOCODER HOLD, **Ghosts is a powerful processing tool** for vocals, drum machines, and more.

Looped exciter sounds

You can also capture unique exciter sounds using the built-in looper. This is one of our favorite ways to use Ghosts.

Give it a try with the contact mic:

1. Make sure **TOUCH PRE / POST** is set to *pre* (so the looper is at the input).

2. Set the **EXCITER** control to VOCODER or VOCODER HOLD.

3. Select **ENDLESS LOOP** as your Touch Mode.

4. Engage the looper, turn on the mic, and strum the surface. Try capturing a short loop (1-2 seconds), then overdub a few strums to build up a richer sound.

*NOTE: the mic may be gated, but it's still recording — watch the **TOUCH LED** to confirm.*

5. Start sending **MIDI notes** during playback.

Your loop becomes the sound that's triggered when you press the keys.

Mixing, Input Level, Bypass Options

Mixing, Input Level, and Bypass settings are global and persistent between power cycles. You only need to visit these menus if you want to make a change.

Default settings are **mono in / mono out instrument level**, and **analog bypass**.

Mixing and input levels

To access the **Mixing and Input Level Menu, hold down the TOUCH footswitch while applying power** to Ghosts. Both footswitch LEDs will turn **blue**.

The **MODEL**, **MIC**, and **LAYER LEDs** (from left to right) indicate settings **1-3**, and **4-6**. Tap LAYER to toggle between them.

- To **save** a new setting press **TOUCH**.
- To **exit** without saving press **BYPASS**.

After saving or exiting, Ghosts will boot up normally.

1. **STEREO IN / STEREO OUT — INSTRUMENT LEVEL**
2. **MONO IN / STEREO OUT — INSTRUMENT LEVEL**
3. **MONO IN / MONO OUT — INSTRUMENT LEVEL**
4. **STEREO IN / STEREO OUT — LINE LEVEL**
5. **MONO IN / STEREO OUT — LINE LEVEL**
6. **MONO IN / MONO OUT — LINE LEVEL**

INSTRUMENT LEVEL provides some helpful guard-rails. It lowers the limiter threshold by 10 dB, limits the contact mic volume, and softens the levels of the drum machine and internal exciter. **LINE LEVEL** enables the full dynamic range of Ghosts.

Bypass options

To access the **Bypass Menu, hold down the BYPASS footswitch while applying power** to Ghosts. Both footswitch LEDs will turn **yellow**.

The **MODEL**, **MIC**, and **LAYER LEDs** (from left to right) indicate settings **1-3**. Tap LAYER to toggle between them.

- To **save** a new setting press **TOUCH**.
- To **exit** without saving press **BYPASS**.

After saving or exiting, Ghosts will boot up normally.

1. **ANALOG BYPASS**
   Uses an analog switch to completely bypass Ghosts' audio converter. Your audio remains analog when the pedal is bypassed.

2. **BUFFERED BYPASS**
   A smooth, silent option where your audio still runs through the electronics when bypassed.

3. **BUFFERED BYPASS WITH TRAILS**
   Another silent option. Your input signal is unaffected, but **Ghosts will continue to act as a sound source**, so you'll still hear resonator and reverb decay, loops, and drum patterns.

MIDI, CV, Expression Control

Ghosts is compatible with any MIDI controller that has a **DIN** or **TRS MIDI output**. It detects TRS MIDI **Type A** and **Type B** connections. You can also use the USB-C port to send **MIDI over USB** from your DAW or other USB ***host***.

Our **online manual** covers MIDI topics, as well as CV / EXP control. Here are some things you can try:

- **Use CC Messages** to control any parameter(s) on Ghosts.
- **Use PC Messages** to rapidly load or sequence presets.
- **Send a MIDI clock** to sync any of the Touch Modes with external gear.
- **Send a *user* scale** to retune the resonators to a system other than 12-tone equal temperament, then play or sequence your scale with MIDI notes.
- **Send a *user* chord** to create your own notch on the CHORD knob. You can save your custom chords and tunings into presets.
- **Map the CV / EXP input** to any parameter(s) and control them with a eurorack system or expression controller.
- **Map TOUCH to CV / EXP**. If Ghosts is at your fingertips but you wish you could control the footswitch hands-free, try controlling it with an expression pedal.
- **Download our Max for Live device** to control Ghosts in Ableton.

See: kinotoneaudio.com/ghosts-manual

Firmware and Documentation

Occasionally we may release new firmware to address bugs or improve features. If new firmware is made available, we will share about it on our forum and the Ghosts' product page.

Firmware can be installed in seconds using the included **USB-C** cable.

If updates or changes are made to Ghosts, **our online manual is the source of truth** and will be kept up-to-date.

Find the full web manual here:
kinotoneaudio.com/ghosts-manual

We love to hear from our users! Connect with the Kinotone community to browse topics and start discussions: **forum.kinotoneaudio.com**

For direct support email:
support@kinotoneaudio.com