

RHYTHMIC AMPLITUDE SHAPING

Piston

Make space. Shape the movement.



A practical guide to tempo-synced movement, MIDI and audio triggering, low-band ducking and the sixteen original envelope shapes.

Inside	Pages
Quick start, installation and interface	02-04
Controls, triggering, shape editing and signal flow	05-09
Starting points, host settings, activation and help	10-13

01 / QUICK START

Your first groove

Movement defined by a curve

Piston changes a sound's level over a musical cycle. The curve sets the gain movement; the trigger decides when it starts. Insert it on the bass, pad, synth or bus you want to shape. An audio sidechain can trigger the curve without becoming part of the output.

1. Install and activate

Install the format your DAW supports (page 3), open Piston, then activate your AudioNode licence (page 12). Begin with BYPASS off, LOW ONLY off, LISTEN off and OUTPUT at 0 dB.

2. Start with the timeline

Choose SYNC, RATE 1/4 and shape 01 / Tide. Start the DAW transport. AMOUNT controls the depth: try 50% for a gentle opening, or 100% for the full envelope.

3. Fit the recovery

Drag the graph left or right to adjust SLOPE. Shift-drag offsets the shape. Use STRETCH for a wider shape inside the same cycle. RESET restores only the current shape's Slope and Shift.

4. Compare in context

Listen with the rest of the mix. Use OUTPUT to balance the result and BYPASS for an untrimmed dry comparison. Save the DAW project or a host preset to keep the settings.

Choose the clock: SYNC follows a repeating musical grid. MIDI follows note-on events. AUDIO follows transients from a routed external sidechain. Enable that bus and send it a trigger source in your DAW.

For transparent full-band passage through an activated Piston, set AMOUNT to 0%, OUTPUT to 0 dB and LISTEN off. BYPASS also returns untrimmed input. A stopped Sync transport restores unity envelope gain, but OUTPUT and low-band LISTEN still apply.

02 / SETUP

Install, update and remove

Platform	Formats and location
macOS 11 or later	Universal Apple Silicon and Intel AU / VST3. AU: ~/Library/Audio/Plug-Ins/Components/ VST3: ~/Library/Audio/Plug-Ins/VST3/
Windows 10 or later	64-bit VST3. C:\Program Files\Common Files\VST3\Piston.vst3

macOS

Save your session and quit audio hosts. Open the supplied Setup DMG, launch Piston Setup, read the licence terms, then continue. Choose AU, VST3 or both and click Install. By clicking Install, you agree to the terms. Reopen your DAW and rescan if needed. Use a host that supports the chosen format; AU is a MIDI-capable music effect, so its placement and routing depend on the host.

Windows

Close audio hosts and run Piston Setup. Read the licence terms, then continue to Install. By clicking Install, you agree to the terms. The common VST3 folder requires administrator permission. For manual installation, copy the entire Piston.vst3 bundle into that folder. Restart or rescan your DAW.

Updates

Click the Fletcher Audio logo below the envelopes for the installed version, a manual check and the automatic-check preference. Automatic checks run at most once daily after opening the editor. A green indicator marks an available compatible update. Downloads open the Piston page on AudioNode; quit your DAW before installing the downloaded update.

Removal and backups

On Mac, use Uninstall Piston in ~/Applications/Fletcher Audio. Owned previous plugin copies are backed up under ~/Library/Application Support/Fletcher Audio/Piston/Backups. On Windows, uninstall in Settings > Apps. Projects and saved settings are preserved. Uninstalling does not release an AudioNode computer activation; manage that separately on page 12.

The development standalone application is separate from the AU/VST3 installers. Build targets and automated validation do not establish compatibility with every DAW or OS combination. Use the supplied package's release notes for its tested scope.

03 / INTERFACE

Find your way around



Product control-panel reference. The licensed build adds an AudioNode Licence footer below this panel; activation is covered on page 12. The cover uses a product illustration.

On the panel	What to look for
Graph	Green: target gain curve. Grey: processed output and external key traces. Horizontal position is the current envelope cycle.
RATE / trigger / AMOUNT	Cycle duration, source of triggers and modulation depth. AMOUNT is named Depth in host automation.
SLOPE / SHIFT / STRETCH	Curve timing. Each shape remembers its own Slope and Shift; Stretch is shared.
BAND / FREQUENCY / OUTPUT	Low-band processing and monitoring, crossover frequency and final output trim.
Envelope tiles / logo	Choose one of 16 shapes. Click the Fletcher Audio logo for update settings.

REDUCTION follows the smoothed envelope, not Output trim or overall loudness. HOST means the DAW supplies timeline position; INTERNAL means that position is absent, even if host tempo is still available.

04 / REFERENCE

The main controls

Panel / host name	Range / default	Behavior
AMOUNT / Depth	0-100% / 100%	Blends between unity gain and the chosen envelope. At 100%, the complete shape is applied.
RATE / Length	7 lengths / 1/4	1/8, 1/4, 1/2, 1/1, 1/8 T, 1/4 T, 1/4 D. T is triplet; D is dotted.
SLOPE	-1 to +1 / 0	Changes progress through the selected curve. Positive delays progress; negative advances it. Stored per shape.
SHIFT	-0.5 to +0.5 / 0	Offsets the shape in displayed-cycle units. Positive moves it later. Offsets wrap. Stored per shape.
STRETCH	0-50% / 0%	Widens the shape within the same visible cycle. Does not extend the time before the next Sync repeat.
LOW ONLY	Off / On; Off	Applies shaping to the complementary 6 dB/oct low band while preserving the high-band contribution.
FREQUENCY / Crossover	20-5120 Hz / 180 Hz	Sets the low-band cutoff. Has an audible role when LOW ONLY is enabled.
LISTEN	Off / On; Off	Monitors the processed low band alone. Active only with LOW ONLY enabled.
OUTPUT	-24 to +12 dB / 0 dB	Trims the processed output. Bypass excludes this trim.
BYPASS	Off / On; Off	Smoothly selects untrimmed, full-band input.

Drag controls or edit their displayed values. Double-click Slope, Shift, Stretch or Output to restore zero; double-click Amount to restore 100%. RESET affects the selected shape's Slope and Shift only. Threshold and the other advanced parameters are in the host's parameter/automation controls (page 11).

05 / SYNC, MIDI AND AUDIO

Choose what starts the shape

SYNC: follow the musical grid

Choose SYNC and a RATE, then start the DAW transport. Piston aligns to the host's quarter-note position when available, and repeats at the selected duration. A valid host tempo overrides Internal tempo. Without PPQ it free-runs its phase while respecting any supplied host tempo and play state. Without a host position object it runs freely; without valid tempo it uses the Internal tempo parameter. Stopping host transport returns the envelope toward unity.

MIDI: follow individual notes

Route a MIDI track to Piston's MIDI input using your DAW's routing. Choose MIDI, play notes and set RATE for the cycle length. Positive-velocity note-ons start or restart the cycle at their event position; note-offs and zero-velocity note-ons do not trigger. Velocity and note duration do not scale the shape. MIDI channel and note filters are available through host parameters. The note does not generate audio: Piston still needs a main audio input.

AUDIO: follow a kick or another transient

Insert Piston on the sound to be shaped. Enable its external sidechain bus in the host and route the trigger track to that bus, then choose AUDIO. The key drives detection and is not mixed into the output. A missing or silent external sidechain does not trigger the envelope; there is no automatic fallback to the main input.

One trigger, one visible cycle. MIDI and Audio wait at unity envelope gain before the first trigger. They then play to the right edge and hold its gain until another trigger. A descending, shifted or stretched shape may hold an attenuated level. Use the drawn endpoint to judge the result.

Make Audio detection reliable

Begin near the default -24 dB threshold and 60 ms holdoff, then adjust in the host parameter list. Lower the threshold for softer triggers; raise it for unwanted triggers. The detector must fall below its rearm level before another crossing can fire. Holdoff limits repeated audio triggers; it is not a repeat timer or a MIDI note filter.

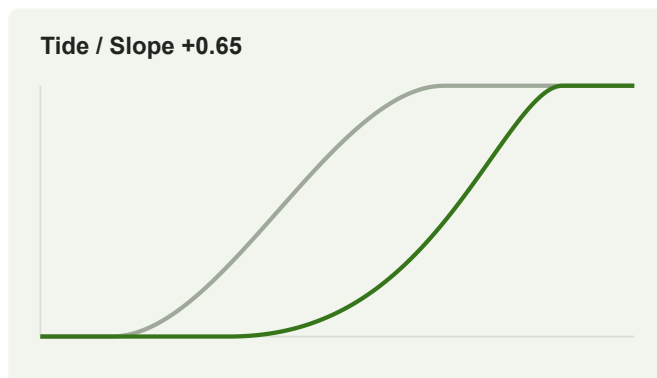
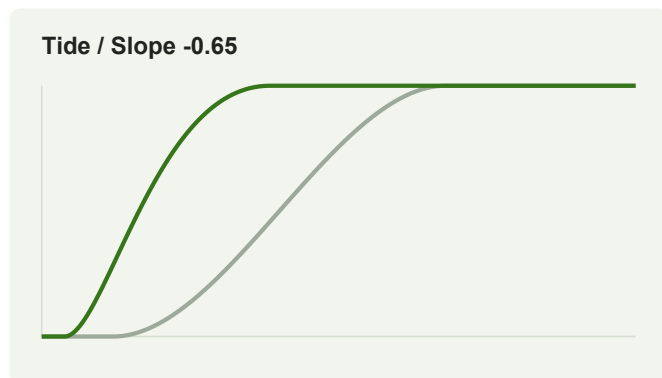
Host MIDI and sidechain capabilities vary. Piston's AU is a music effect (aumf), so some hosts expose it through a MIDI-controlled effect workflow. Use the host's instructions for simultaneous audio and MIDI routing. Zero reported latency means there is no lookahead; a detected audio transient cannot be anticipated.

06 / SHAPE EDITING

Slope, Shift and Stretch

Change timing while keeping the same rate

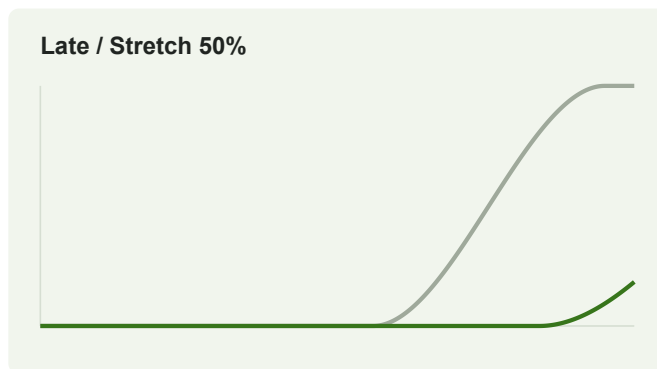
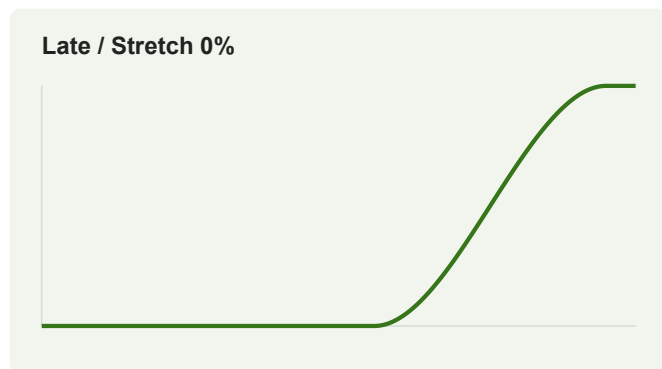
Drag the graph right for positive Slope or left for negative Slope. Hold Shift and drag right to move the shape later, or left to move it earlier. The Slope and Shift dials provide the same adjustments. Each envelope tile recalls its own pair of values.



Green is the adjusted curve; grey is the same shape at zero Slope. Higher position means more gain. Diagrams use the actual envelope helper with Amount at 100%, Shift at zero and no anti-click smoothing.

Stretch shows only the playable part

At 50%, the shape is 1.5 times as wide, but the playback window stays one cycle long. SYNC wraps at the right edge on the same musical grid. MIDI and AUDIO stop there and hold that level; they never continue into an off-screen recovery tail.

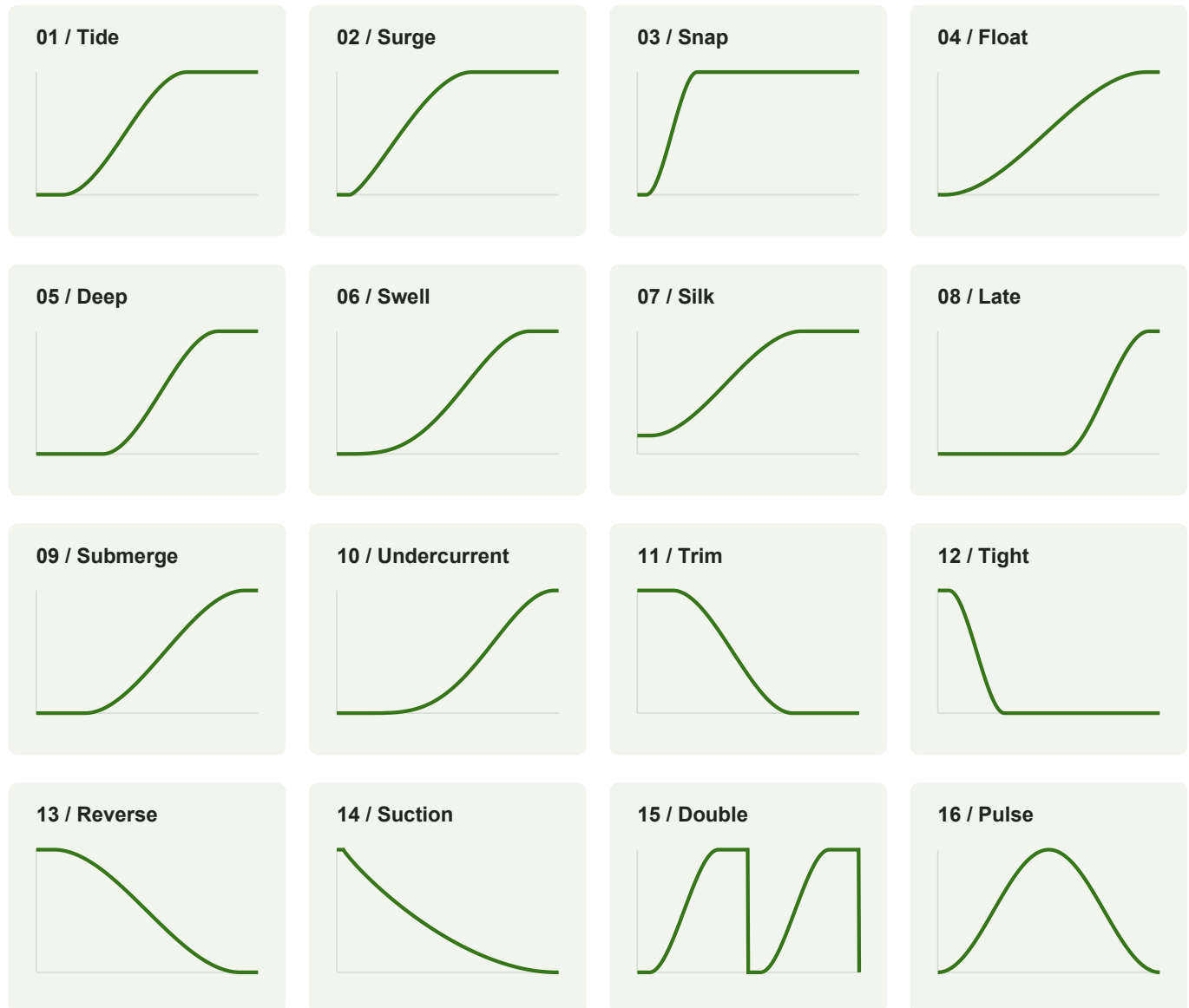


If a triggered sound stays quiet: examine the right edge, reduce Stretch, move Shift, lower Amount, or choose a rising shape that has reached full gain. RESET does not clear Stretch; double-click its dial to restore 0%.

07 / ENVELOPE LIBRARY

Sixteen original shapes

At Amount 100%, Slope 0, Shift 0 and Stretch 0%. Left to right is one cycle; low to high is gain 0 to 1. These are gain targets, before Anti-click smoothing.



Choose the direction of movement

Tide through Undercurrent explore rising recovery, from quick openings to longer dips; Silk retains some gain at its minimum. Trim, Tight, Reverse and Suction fall across the cycle. Double opens twice, while Pulse rises and falls smoothly.

In one-shot modes the exact right edge matters. Descending shapes, Double and Pulse can end at zero gain even with Stretch at 0%. At Amount 100% that held endpoint can silence the main signal (or the low band in LOW ONLY mode) until retriggered.

08 / LOW BAND AND SIGNAL FLOW

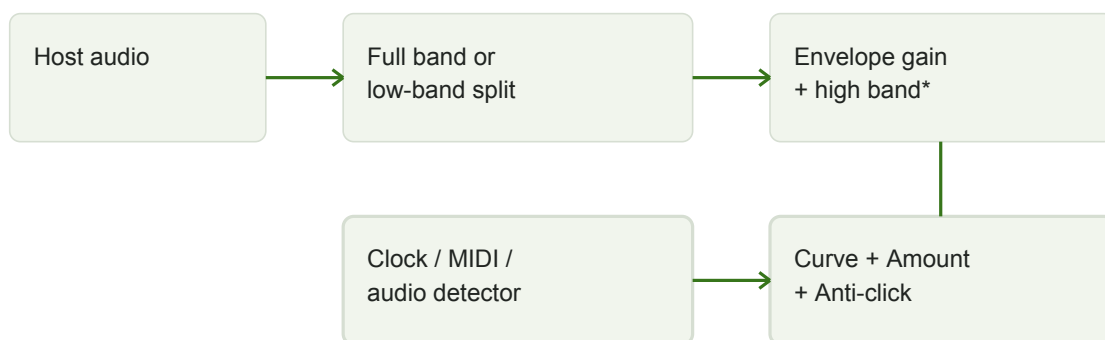
Shape only what needs space

LOW ONLY preserves the upper-band contribution

Enable LOW ONLY and set FREQUENCY to place the split. The low band receives the envelope; the complementary high band is added back unchanged before Output. The split is gentle (6 dB/oct), so this is a broad tonal transition. It is not a brick-wall crossover.

Use LISTEN to hear the decision

Enable LISTEN while LOW ONLY is on to audition the processed low band. Adjust FREQUENCY until that band contains the material you want to duck, then switch LISTEN off for the complete sound. LISTEN can make a mix seem dark or quieter if left enabled.



* High band is added only for LOW ONLY with LISTEN off. The resulting signal passes through OUTPUT. BYPASS selects the original input with smoothing; the separate licence gate also returns dry audio when processing is unauthorised.

Complementary means a clean recombination

The high band is calculated as input minus low band. With unity envelope gain, LISTEN off and OUTPUT at 0 dB, the two contributions sum back to the original signal. Stereo channels share the same envelope movement while retaining separate low-band filter states.

Anti-click smooths changes after they occur (default 2 ms, range 0-10 ms). There is no lookahead, oversampling or compressor gain computer. Piston reports zero samples of latency in every mode; Output is a gain trim, not a limiter.

09 / PRACTICAL SETTINGS

Starting points for a mix

These are listening suggestions, not shipped presets. Start with Slope 0, Shift 0, Stretch 0%, LISTEN off and OUTPUT 0 dB, then adjust in context. Rate follows the host tempo.

Use	Starting settings	Listen for
Four-on-the-floor bass	SYNC / 1/4 Tide / Amount 70-100%	Raise Slope for a later recovery; lower Amount if the gap is too deep.
Subtle pad movement	SYNC / 1/2 Float / Amount 20-45%	A slow swell that breathes without losing the sustained texture.
Irregular kick and bass	AUDIO / 1/4 Snap or Tide / Amount 60-100%	Route the kick externally; adjust Threshold and holdoff for one event per intended hit.
Low-end pocket	SYNC or AUDIO Tide / LOW ONLY on Frequency 100-200 Hz	Audition with LISTEN, then switch it off. Keep upper harmonics present.
MIDI-programmed rhythm	MIDI / 1/8 Snap / Amount 100%	Each note starts a cycle. Use channel/note filters if the MIDI feed contains unrelated notes.
Reverse-style fade	SYNC / 1/2 Reverse / Amount 40-80%	Gain closes during the cycle. In triggered modes its endpoint stays low until the next trigger.

Balance the level, then decide

A deeper envelope removes more average energy. Compare with BYPASS at a sensible listening level and use OUTPUT to balance the result. Watch the DAW's output meter when adding positive gain: Piston does not prevent overload.

At 120 BPM: 1/4 lasts 500 ms, 1/8 lasts 250 ms and 1/1 lasts 2 seconds. These are fixed quarter-note-based durations; 1/1 means four quarter notes, not an automatically detected bar in every time signature.

10 / ADVANCED REFERENCE

Host controls and project recall

Host parameter	Range / default	Purpose
Trigger threshold	-60 to 0 dB / -24 dB	Audio detector sensitivity.
Retrigger holdoff	5-250 ms / 60 ms	Minimum Audio trigger spacing, with detector rearming also required.
Anti-click	0-10 ms / 2 ms	Causal envelope smoothing. Zero exposes sharper discontinuities.
MIDI channel	0-16 / 0	0 accepts every channel; 1-16 selects one.
MIDI note	-1 to 127 / -1	-1 accepts every note; 0-127 selects one.
Internal tempo	20-300 BPM / 120	Fallback when a valid host tempo is unavailable.

Automation and recall

The host parameter list includes the main controls and sixteen separate Slope/Shift pairs. Projects save all parameter values and curve adjustments. A DAW preset can reuse them; there is no plugin file-preset import/export menu. External audio/MIDI routing is managed by the host. Licence authority is never saved in a DAW project.

Older sessions

States without Stretch load it as 0%. Legacy Triggered loop and One-shot end IDs remain for compatibility and are ignored by processing. Slope now uses a smooth time warp: an older session with nonzero Slope can follow a smoother, changed trajectory. Check important old sessions by ear.

Specification	Scope
Main / sidechain buses	Matched mono or stereo main I/O; external key disabled, mono or stereo.
Formats / latency	macOS AU and VST3; Windows x64 VST3. Zero reported samples in every trigger mode.
Interface	Product panel defaults to 840 x 559 px, resizes proportionally; licensed editor adds a 32 px footer.
Quality and compatibility	No lookahead, oversampling, AAX or VST2. Native Intel host operation and every DAW combination are not established by universal builds.

Activate and manage your licence

One licence holder, up to three computers. Online activation is required for each computer. A valid signed device certificate permits offline use until its expiry, for at most 30 days per certificate. This is a summary; the supplied Piston Licence Terms govern use.

1. Recover your key

Choose Find my licence to open your AudioNode account, or sign in and open History to find your Piston AN-key or download its .audionode-license recovery file. Manage active computers at audionode.io/licences.

2. Activate Piston

On the Activate Piston screen, paste the key into Licence key, or choose Import licence file to fill that field. Click Activate while online; importing alone does not activate a computer. After the confirmation **Piston is activated**, choose **Return to plugin**. Reopen the screen later with the Licence footer button.

3. Work online or offline

Piston checks the signed device certificate and renews it in the background when online. A fresh certificate becomes due for renewal after one day. Offline use ends at the current certificate's expiry; simply opening the plugin does not start a fresh 30-day period.

4. Move to another computer

Use Manage my licence on the licence screen to open your AudioNode computer list. Deactivate an old computer if all three slots are occupied, then activate the new one. A recovery file restores the key; a copied device certificate cannot authorise a different computer.

If authorisation is unavailable

Unauthorised, expired or revoked processing returns dry input after a short transition. Piston retains its project settings. Connect to the internet and check the Licence status; a remotely deactivated computer needs explicit activation again. Offline revocation is bounded by the remaining certificate validity.

Activation sends the key, product, a hashed device identifier and computer label over HTTPS. Renewal sends the signed device certificate. Reusable keys are not stored by the plugin; the signed certificate is cached in the user's AudioNode/Licences folder. Audio, MIDI and DAW project contents are not sent by the licensing client. Update checks are separate and have their own preference.

12 / HELP

Troubleshooting and support

Symptom	Check
Piston does not appear	Install a compatible format, then restart/rescan the host. macOS AU is registered as a music effect; check the host's MIDI-capable effect workflow.
Audio passes but nothing changes	Check Licence status and BYPASS, then Amount, trigger mode and transport. MIDI/Audio wait for a trigger. In LOW ONLY, a source with little low energy changes less.
AUDIO does not trigger	Check external bus routing and level, then Threshold. An enabled silent sidechain is still the selected detector source. Sustained audio must drop enough to rearm.
MIDI does not trigger	Confirm MIDI reaches this plugin instance and matches its channel/note filters. Use a positive-velocity note-on and supply main audio.
Sound stays low after a hit	Inspect the right edge of the curve. One-shots hold it. Reduce Stretch or Amount, adjust Shift, or choose a rising shape.
Clicks or too much pumping	Increase Anti-click or reduce Amount. Check the cycle boundary and Shift. Smoothing acts after a change; Audio mode has no lookahead.
Output is dark or distorted	Turn LISTEN off to hear the complete band mix. Lower OUTPUT and check the DAW's meters. Positive Output gain can clip downstream.
Activation fails / device limit	Check the key belongs to Piston, connect online, check system time and manage the three computer slots. Restart the host after correcting its clock.

Useful links

Piston downloads and product page - audionode.io/plugins/piston

Computer activation management - audionode.io/licences

AudioNode account, History and support - audionode.io

When contacting support, include Piston version, OS, CPU, DAW/version, plugin format, trigger mode and steps to reproduce the issue. Keep licence keys private. This guide describes Piston 1.0.0 source behavior; release validation records are maintained separately from these operating instructions.