# VERTIKAL



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# 1. Disclaimer

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Document authored by Nicolas Sidi, Jan Ola Korte

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# 2. Welcome to Vertikal

Vertikal captures the sound of Nils Frahm's monumental 4.5-meter (14.7 ft) vertical piano with its extraordinary dynamic range, along with the unique acoustics of Saal 3 in the historic Funkaus Berlin. The instrument's 3.9-meter (12.7 ft) strings are resonating deeply and have an extended bass response, even when played softly.

Vertikal comes with two different instrument flavors. **Pure** offers a warm, clear and expressive sound with a wide dynamic range, deep bass, natural resonance and a defined attack. **Felt** has a softer, slightly muted, intimate and mellow piano sound with a gentler felt attack and a darker, more atmospheric tone.

The Particles engine turns your performances into evolving layers of sound. As you play, tt adds clouds of notes that shift by chance within set ranges of pitch, timing, dynamics, and stereo position.

Vertikal was created in collaboration with Galaxy Instruments, who have previously partnered with us in the creation of Claire, Claire Avant, Noire, Piano Colors, Una Corda, Electric Keys, and more.

This document shows you how to install and setup Vertikal and describes all features in detail, starting with the overview.

We hope you enjoy Vertikal!



## User guide formatting and styles

You will find the following formatting and styles in this user guide:

- *Italics*: Paths to locations on your computer
- **Bold**: Names of user interface elements and important concepts
- [Brackets]: Keys on your computer keyboard

▶ An instruction with a single step

→ The expected result when following instructions



A useful tip, suggestion, or interesting fact



Essential information in a given context



Potential risks and important issues

# 3. Installation and setup

Before making music with Vertikal, you must install and set up the necessary software. Follow these instructions to get started.

## Installing Vertikal using Native Access

Native Access is your go-to app for downloading, activating, and updating all your NI music creation tools including Vertikal. If you are new to Native Instruments, you will first have to create your Native ID user account. To learn more about Native Access, visit our support page.

1. Download and install Native Access here.
2. Open the Native Access application.
3. Create a Native ID, if you do not have one already.
4. Login to Native Access using your Native ID.
5. Click **Library** on the left side of Native Access.
6. Click **Available** at the top of Native Access.
7. Click the **Kontakt** category to only show products related to Kontakt.
8. Click **Install** for the following products:
   - Vertikal
   - Kontakt or Kontakt Player

→ The software is installed automatically.

ⓘ If the software is already installed, click the **Updates** tab and install the available updates before proceeding.

## Loading Vertikal in Kontakt

Once installed, you can start using Vertikal in Kontakt. Vertikal is not an independent plug-in, so you first need to open an instance of Kontakt or Kontakt Player.

Kontakt offers two ways to load an instrument, the Library browser and the side pane browser.

To load an instrument using the Library browser:

1. Open Kontakt as a plug-in in your host software (DAW) or as a stand-alone application.
2. By default, Kontakt opens the Library browser on first launch. If you have turned this off, click **Library** in the Kontakt header to open the Library browser.
3. In the Library browser, make sure that the **Instruments** category is selected at the top (this should be the case by default), otherwise click **Instruments** to select that category.
4. Locate Vertikal in the Library browser. You can use the search bar at the top to quickly find it.
5. Click on the arrow icon (**>**) in the top right corner of the instrument's artwork to load the instrument and its first preset.
6. Alternatively, you can click the instrument's artwork to display its presets in the list on the right of the browser window.

7. Double click any preset to load it. The first entry, identified by a keyboard icon, loads the instrument with its default preset.

To load an instrument using the side pane browser:

1. Open Kontakt as a plug-in in your host software (DAW) or as a stand-alone application.
2. In the side pane on the left, make sure that the **Instruments** category is selected (this should be the case by default), otherwise click **Instruments** to select that category.
3. Locate Vertikal's artwork tile below.
4. Click on the arrow icon (**>**) in the top right corner of the instrument's artwork to load the instrument and its first preset.
5. Alternatively, you can click the instrument's artwork to display the list of its presets.
6. Double click any preset to load it. The first entry, identified by a keyboard icon, loads the instrument with its default preset.

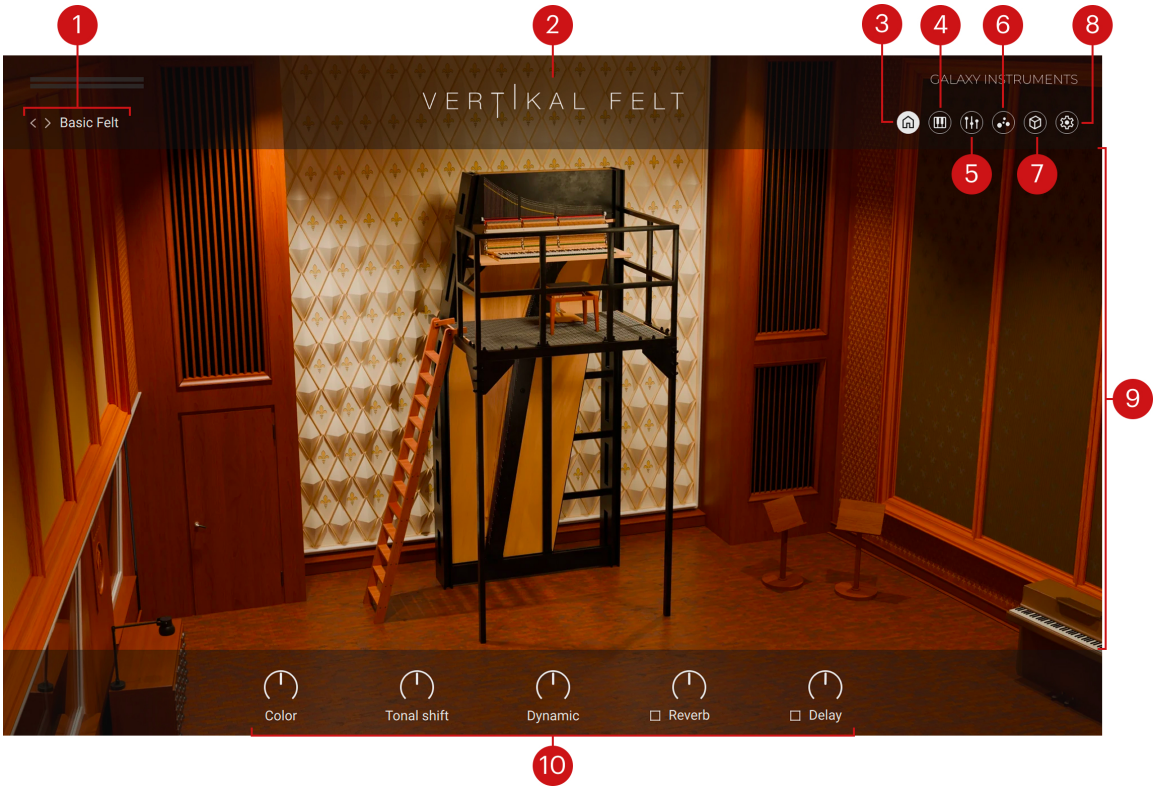


If you are new to Kontakt and want more information, visit Kontakt Player and Kontakt.

# 4. Vertikal overview

This chapter introduces the main controls and areas of Vertikal.

When you first open Vertikal, you see the Main page along with a set of global controls:

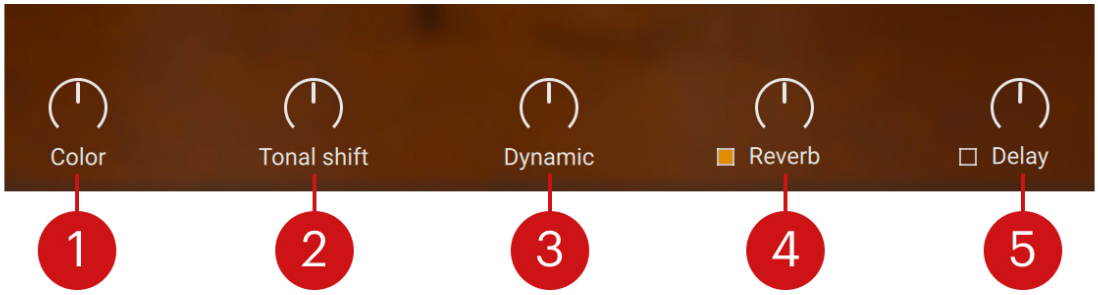



1. **Preset selector**: The name of the loaded preset is always visible. Presets contain values for all parameters of the instrument: They correspond to Kontakt Snapshots. The name of the preset currently loaded is displayed here. Click the left and right arrows to cycle through presets, or click the name of the preset to open the Preset Browser and select another preset from the Vertikal factory library.
2. **About**: Clicking the instrument name opens the About screen, which displays the credits for this instrument. You can click the About screen to close it again.
3. **Main**: Opens the Main page, showing an animated artwork of the original instrument (depicted above). This is the default page that appears when you load the instrument in Kontakt.
4. **Piano**: Opens the Piano page, which lets you adjust the sonic characteristics of your instrument. You can find more information in Piano page.
5. **FX**: Opens the Effect page, where you can configure various effects that will process the sound of your instrument, including equalization, dynamics, saturation, stereo image, creative, and ambience effects. You can find more information in Effect page.
6. **Particles**: Opens the Particles page, where you can configure the Particles engine. The Particles engine generates and processes a cloud of additional notes based on the notes that you play on the keyboard. Hovering the Particles icon shows the On/off switch that you can use to quickly turn the Particles engine on or off. You can find more information in Particles page.
7. **Space**: Opens the Space page, which lets you adjust a reverberation and a delay used as send effects. You can find more information in Space page.

8. **Settings**: Opens the Settings page, which provides global settings including tuning, response, and pedal controls. You can find more information in Settings page.
9. **Central area**: This is the biggest part of the instrument and it shows the various pages and Browsers.
10. **Performance controls**: Provide a set of controls directly available while playing the Instrument. The Performance controls are always visible. You can find more information in Performance controls for more information.

## Performance controls

The Performance controls are always available at the bottom of the instrument. They include the following elements:

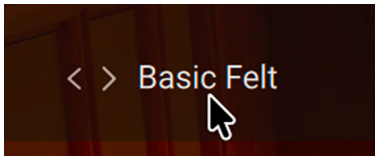



1. **Color**: Adjusts the tone from soft to hard by readjusting the sample mapping. Turning the knob right will make the instrument sound harder and crisper, with a more pronounced attack phase. Turning the Color knob to the left will achieve a warmer and softer sound, and the attack phase will be less pronounced.
2. **Tonal Shift**: Adjusts the playback speed of each sample, resulting in formant or character changes. Moving the slider to the right will make the instrument sound sharper and moving it to the left will result in a deeper, darker sound with a less defined attack.
3. **Dynamic**: Controls the dynamic range by adjusting the volume while still using all velocity samples. Turning the knob left will compress the sound, turning it right will expand the dynamic range.
4. **Reverb**: Controls the amount of signal sent to the reverb unit, and thus determines the volume of the reverb signal. The On/off switch lets you turn the reverb unit on or off. Clicking the **Reverb** label takes you directly to the Space page where you can edit the effect. You can find more information in Reverb.
5. **Delay**: Controls the amount of signal sent to the reverb unit, and thus determines the volume of the delay signal. The little On/off switch at the top left lets you turn the delay unit on or off. Clicking the **Delay** label takes you directly to the Space page where you can edit the effect. You can find more information in Delay.

# 5. Preset Browser

The Preset Browser lets you find and load presets from the Vertikal factory library.

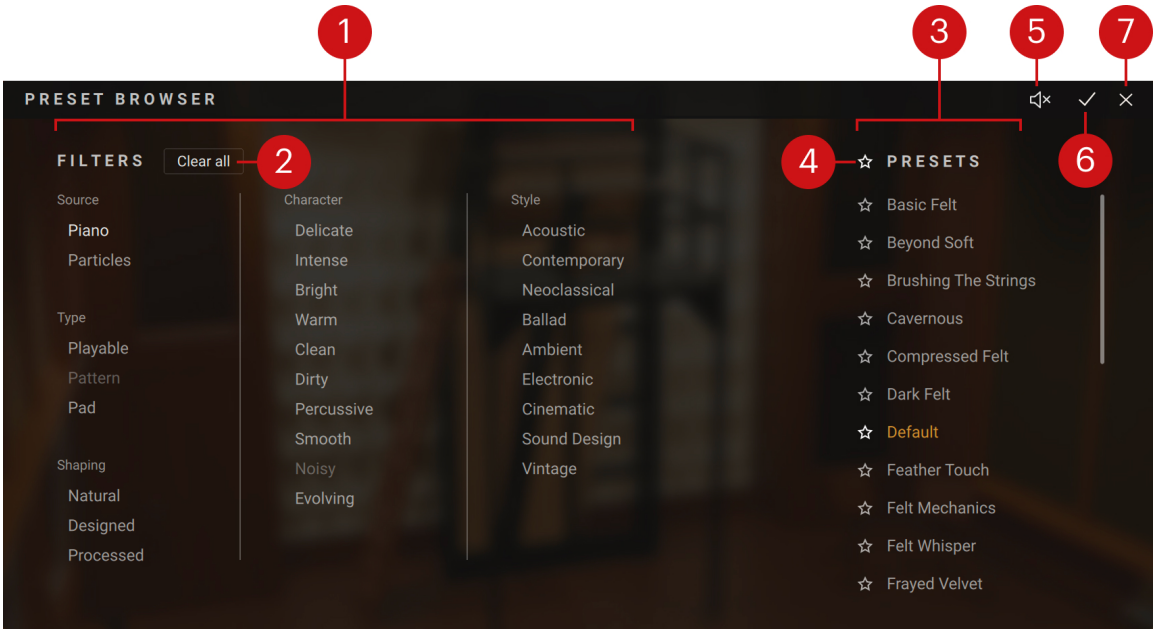
▶ To open the Preset Browser, click the name of the current preset in the top left corner of the instrument:




The Preset Browser follows this typical workflow:

- In the left part of the Browser, you can click the properties describing the type of sound that you are looking for.
- In the right part of the Browser, the list shows the presets matching the properties that you have selected. You can audition each of them in context before you choose one for loading and close the Browser.

The Preset Browser provides the following controls:




1. **Filters**: You can click the tags describing the sound that you are looking for. The **Presets** list on the right is updated accordingly. The Tag filter is organized into three columns, from left to right: Types, Characters, and Styles. As you select tags, the color of the remaining tags indicates whether or not some presets are available:
   - Highlighted tags are already selected. You can click them to deselect them and widen the scope of your search.
   - Normal tags are not selected but they have matching presets in the current **Presets** list. You can select them to further narrow your search.
   - Faded tags are not selected and they do not have any matching presets in the current **Presets** list. You cannot select them, unless you deselect other tags first.
2. **Clear all:** Removes all filter tags from your selection.

3. **Presets**: Shows the presets matching the tags selected in the Tag filter on the left. You can click a preset to load it and try it directly on your keyboard or in your DAW. You can double-click a preset to load it and close the Browser. Some presets use special modulation as indicated by **(MW)** for modwheel, **(VEL)** for velocity, or **(AT)** for aftertouch.
4. **Favorites**: You can click the star icons to add or remove presets to/from your Favorites. The star icons are lit for the presets set as Favorites. This way, you can quickly create a custom collection of your most beloved presets. You can then display only your Favorites by clicking the topmost star icon next to the **Presets** header. Click the topmost star icon again to display also non-Favorite presets.
5. **Preview**: Switches the Preview function on or off. When Preview is on, clicking a preset in the **Presets** list plays a short lick with the preset sound.
6. **OK (check mark icon)**: Keeps the selected preset loaded and closes the Preset Browser. This is the same as double-clicking the preset in the **Presets** list.
7. **Cancel (X icon)**: Closes the Preset Browser without changing anything. Your Kontakt Instrument returns to its previous state.

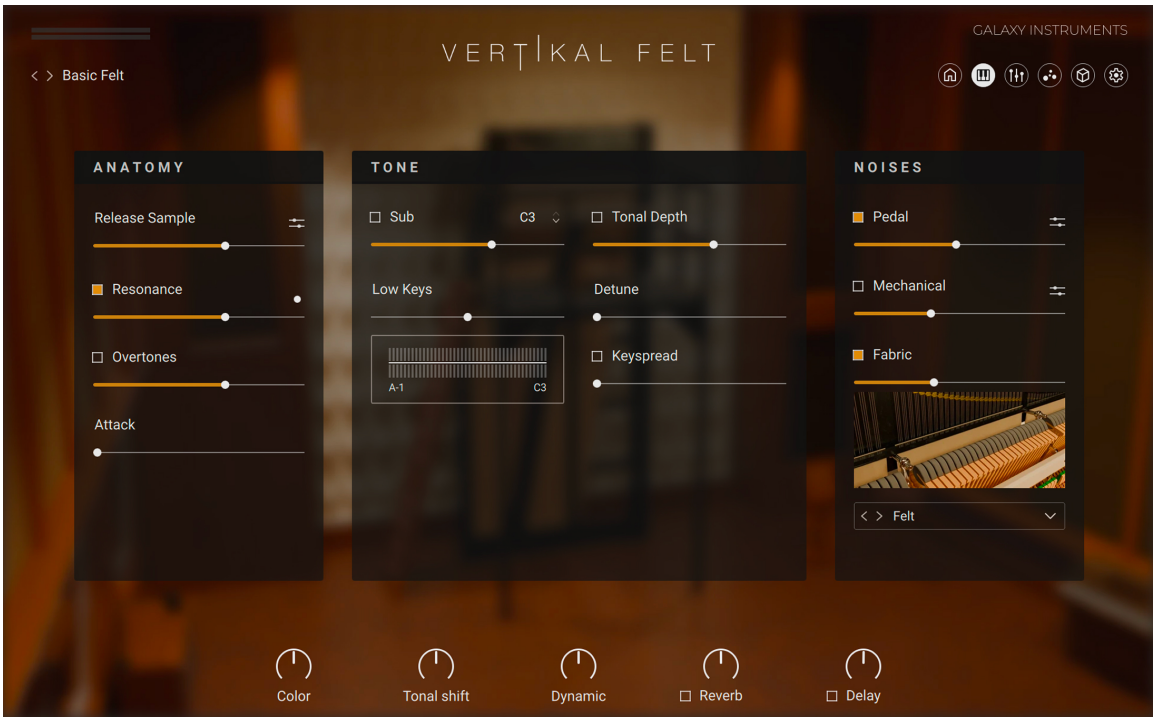
# 6. Piano page

The Piano page lets you shape the instrument's tonal character and sonic details.

▶ Click **Piano** at the top right of the instrument to open the Piano page.



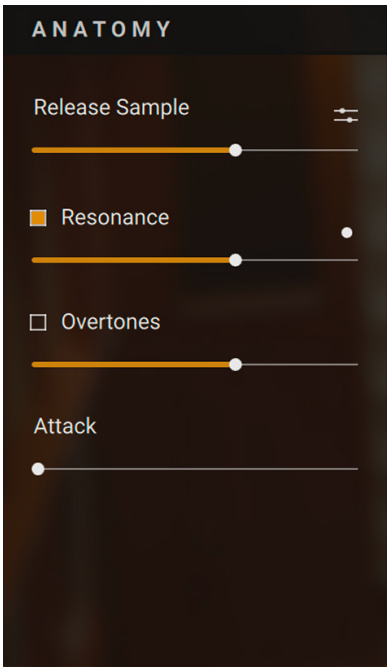

The Piano page is split into three sections:




- **Anatomy section**: Adjusts parameters affecting the shape of the sound. You can find more information in Anatomy section.
- **Tone section**: Adjusts different components of the keyboard sound. You can find more information in Tone section.
- **Noises section**: Adds various noises to the sound. You can find more information in Noises section.

## Anatomy section

The **Anatomy** section of the Piano page contains the following controls:

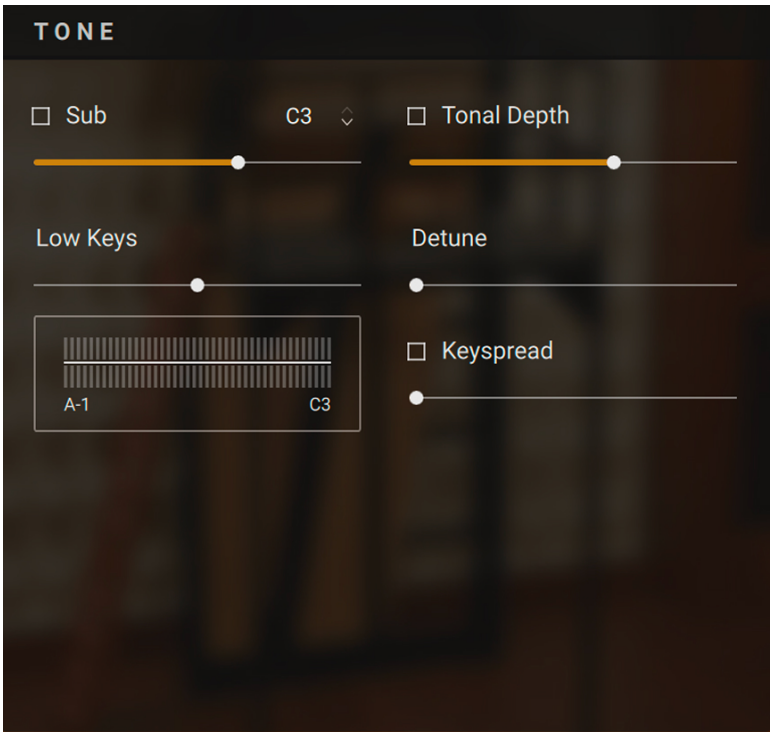



- **Release**: Adjusts the release phase of the sound. The settings panel has the following options:
  - If **Samples** is on, the **Release** slider adjusts the level of additional, dedicated release samples.
  - **Short Releases** shortens the release samples, compensating for the long decay of the instrument's extended strings.
  - If **Time** is on, the **Release** slider adjusts instead the release time of the sound.

  The values for both the release samples' level and the release time are stored and recalled, so that the **Release** slider might jump to a different position when switching between **Samples** and **Time**.
- **Resonance controls**: Adds resonance samples when pressing the sustain pedal. Pressing the sustain pedal on the piano raises all the dampers at once, enabling all strings to resonate sympathetically. This adds a fuller and deeper sound to the note.
  - **Resonance On/Off switch**: Activates or deactivates the resonance samples.
  - **Resonance slider**: Adjusts the volume of the resonance samples.
  - **Pedal indicator**: The resonance samples are triggered only when using the sustain pedal, which is indicated by this LED.
- **Overtones controls**: Adds overtone samples, creating liveliness in the sound. Overtones are the sympathetic string resonances, which can only be heard when playing more than one key at the same time.
  - **Overtones On/Off switch**: Activates or deactivates the overtone samples.
  - **Overtones slider**: Adjusts the volume of the overtone samples.
- **Attack**: Adjusts the attack time of the sound.

## Tone section

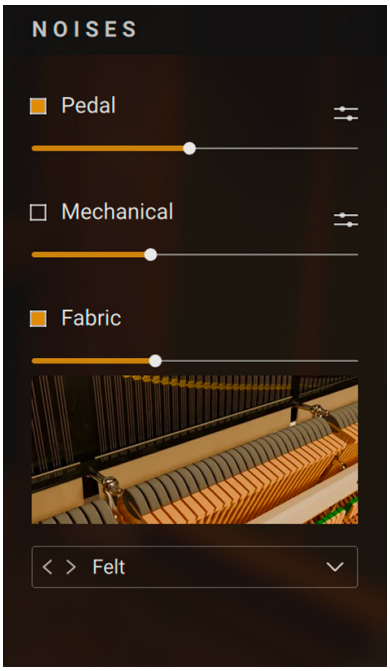
The **Tone** section of the Piano page contains the following controls:




- **Sub controls**: The so-called "sub" samples are additional samples that have been recorded in order to enhance the lower frequencies of the grand piano.
  - **Sub On/Off switch**: Activates or deactivates the sub samples.
  - **Sub slider**: Adjusts the volume of the sub samples.
  - **Sub Key selector**: Sets the split key below which the sub samples are being triggered.
- **Tonal Depth controls**: Adjust an additional resonance for achieving a deeper sound character.
  - **Tonal Depth On/Off switch**: Turns the additional resonance on or off.
  - **Tonal Depth slider**: Adjusts the volume of the additional resonance.
- **Low Keys**: Adjusts the volume of the keys below middle C. Moving the slider to the left decreases the volume of the lower keys, moving the slider to the right increases it. The lower the key, the stronger the effect. The little display below illustrates the current setting.
- **Detune**: Slightly detunes each key differently. At full left, the keyboard is perfectly tuned. The further you drag the slider to the right, the more the keys will go out of tune.
- **Key Spread**: Shifts the sounds to the right or left in the panorama depending on the key, thereby expanding the panorama.

## Noises section

The **Noises** section of the Piano page contains the following controls:




- **Pedal controls**: Adjust the sustain pedal noises.
  - **Pedal Noises On/Off switch**: Turns the noises created by the sustain pedal on or off.
  - **Pedal Noises slider**: Adjusts the volume of all sustain pedal noises.
  - **Pedal Noises settings**: Displays the details of the pedal noises. Here you can set individual levels for **Rumble**, **Damper** and **Strings**.
- **Mechanical controls**: Adjust the mechanical noises.
  - **Mechanical Noises On/Off switch**: Turns on or off the noises created when hitting or releasing a key.
  - **Mechanical Noises slider**: Adjusts the volume of all mechanical noises.
  - **Mechanical Noise settings**: Displays the details of the mechanical noises. Here you can adjust the balance between the **Note On** noises (hitting the key) and **Note Off** noises (releasing the key), and adjust the cutoff frequency of a **Low Cut** filter applied to these noises.
- **Fabric controls**: Control an additional layer of sounds from different kinds of fabrics placed between the hammers and the strings.
  - **Fabric On/Off switch**: Turns the additional fabric sounds on or off.
  - **Fabric slider**: Adjusts the volume of the fabric sounds.
  - **Fabric menu**: Selects from various sounds using different materials.

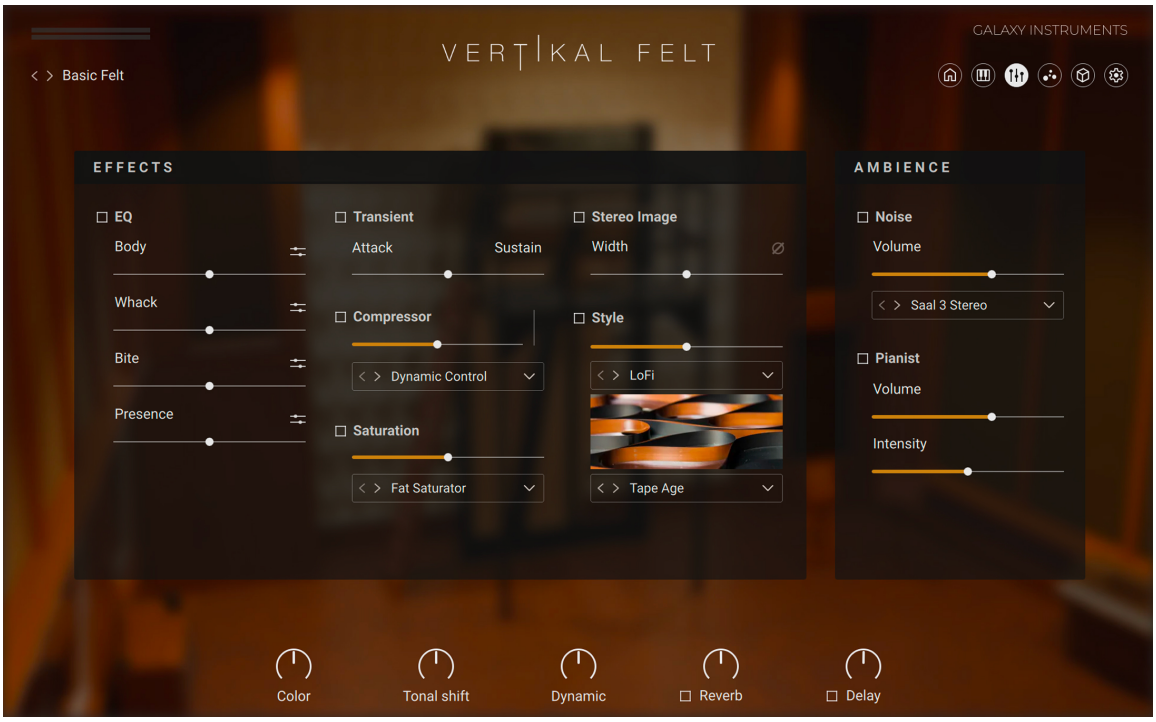
# 7. Effect page

The Effect page lets you configure various effects that enhance the main piano sound.

▶ Click **FX** at the top right of the instrument to open the Effect page.




The Effect page is split into two sections:




- **Effects section**: Adjust a collection of creative effects applied to the instrument. You can find more information in Effects section.
- **Ambience section**: Adds external sounds from the room and from the player. You can find more information in Ambience section.

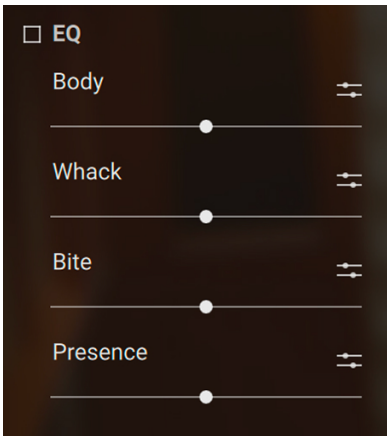
> The effects in this page affect only the main piano sound. Other effects dedicated to the particles are available in the **Effects** section of the Particles page. You can find more information in Effects section for more information.

## Effects section

The Effects section of the Effect page contains an equalizer, transient shaper, compressor, as well as saturation, stereo imaging and a special Style effect.

## EQ

Lets you shape and balance the tone using a four-band equalizer.

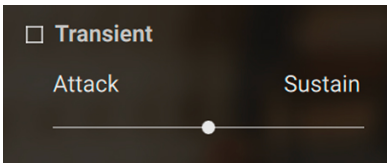



- **EQ On/Off switch**: Turns the equalizer on or off.
- **Gain sliders**: Adjust the levels of the four frequency bands. From top to bottom, the sliders control lower to higher frequency bands. The frequency bands are labeled in musical terms. You can customize the frequency band of each gain slider to your needs by clicking the Settings icon next to it.
- **Settings icons**: Each icon opens a panel in which two parameters let you adjust the frequency response for that equalization band. For all four sliders, the **Freq** knob controls the center frequency of the band. As you adjust the frequency, the musical term under the Gain slider changes accordingly. For the middle two Gain sliders, a **Q** knob controls the sharpness of the bandwidth: The higher **Q** is, the narrower the band is. For the outer two Gain sliders, a **Bell** button lets you switch the frequency band's response between shelf (button off) and bell (button on).




## Transient

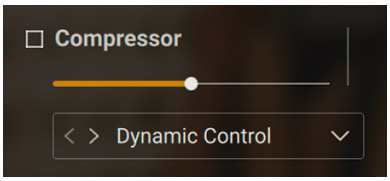
Lets you shape the transients at the beginning of each note.




- **Transient On/Off switch**: Turns the transient control on or off.
- **Transient slider**: Accentuates the attack when pushed to the left, or lengthens the sustain when pushed to the right.

## Compressor

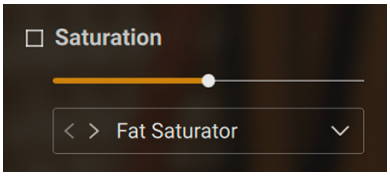
Lets you apply compression to the sound.




- **Compressor On/Off switch**: Turns the compressor on or off.
- **Compressor slider**: Adjusts the amount of compression.
- **Compressor Type selector**: Selects from various compression type with different ratio, attack and release settings. You can also click the little arrows on the left to switch to the next or previous entry from the menu.

## Saturation

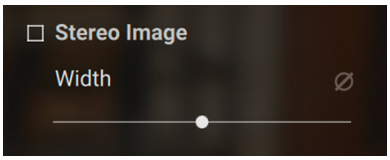
Lets you apply saturation to the sound.




- **Saturation On/Off switch**: Turns the saturation on or off.
- **Saturation slider**: Adjusts the amount of saturation.
- **Saturation Type selector**: Selects from various saturation types. You can also click the little arrows on the left to switch to the next or previous entry from the menu.

## Stereo Image

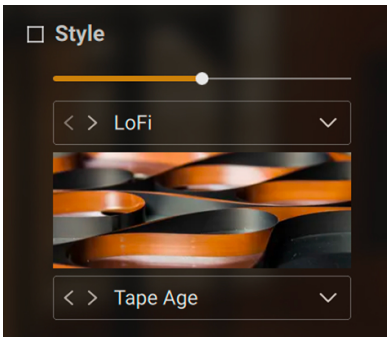
Lets you control and enhance the stereo width of the sound.




- **Stereo Image On/Off switch**: Turns the stereo imager on or off.
- **Width slider**: Widens or narrows the stereo field. The middle position corresponds to the stereo width of the original recording. Moving the slider to the left makes the sound narrower up to mono at full left, while moving it to the right artificially enhances the stereo width.
- **Width Invert switch**: The samples of the grand piano are panned with the low notes on the left and the high notes on the right, which corresponds to the listening position of the player. Using the Width Invert button swaps the left and right channels, changing the listening position to that of the audience.

## Style

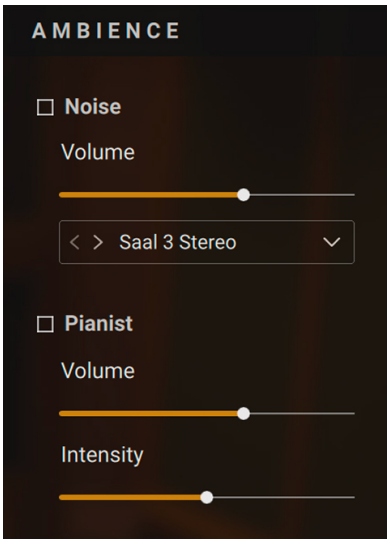
Lets you select from various preset effects that change the character of the sound, and adjust the intensity of the effect.




- **Style On/Off switch**: Turns the effect chain on or off.
- **Amount slider**: Ajusts the amount of the selected effect chain applied to the sound.
- **Style Category selector**: Selects from various multi-effect categories. You can also click the little arrows on the left to switch to the next or previous entry from the menu.
- **Style Preset selector**: Selects from various multi-effect presets in the chosen category. You can also click the little arrows on the left to switch to the next or previous entry from the menu.

## Ambience section

The Ambience section of the Effect page contains the following controls:




- **Noise controls**: Adjust the continuous ambient noise.
  - **Noise On/Off switch**: Turns the ambient noise on or off.
  - **Noise Volume slider**: Adjusts the volume level of ambient noise.
  - **Noise Source selector**: Selects from different ambient noise sources.
- **Pianist controls**: Adjust the noises created by the pianist such as squeaks, breaths, etc. Pianist noises are only triggered if the piano is actually being played.
  - **Pianist On/Off switch**: Turns the pianist noises on or off.
  - **Pianist Volume slider**: Adjusts the volume level of pianist noises.
  - **Pianist Intensity slider**: Adjusts the rate of pianist noises.

# 8. Particles page

The Particles page lets you adjust the behavior of the Particles engine, which generates a cloud of additional ghost notes.

▶ Click **Particles** at the top right of the instrument to open the Particles page.

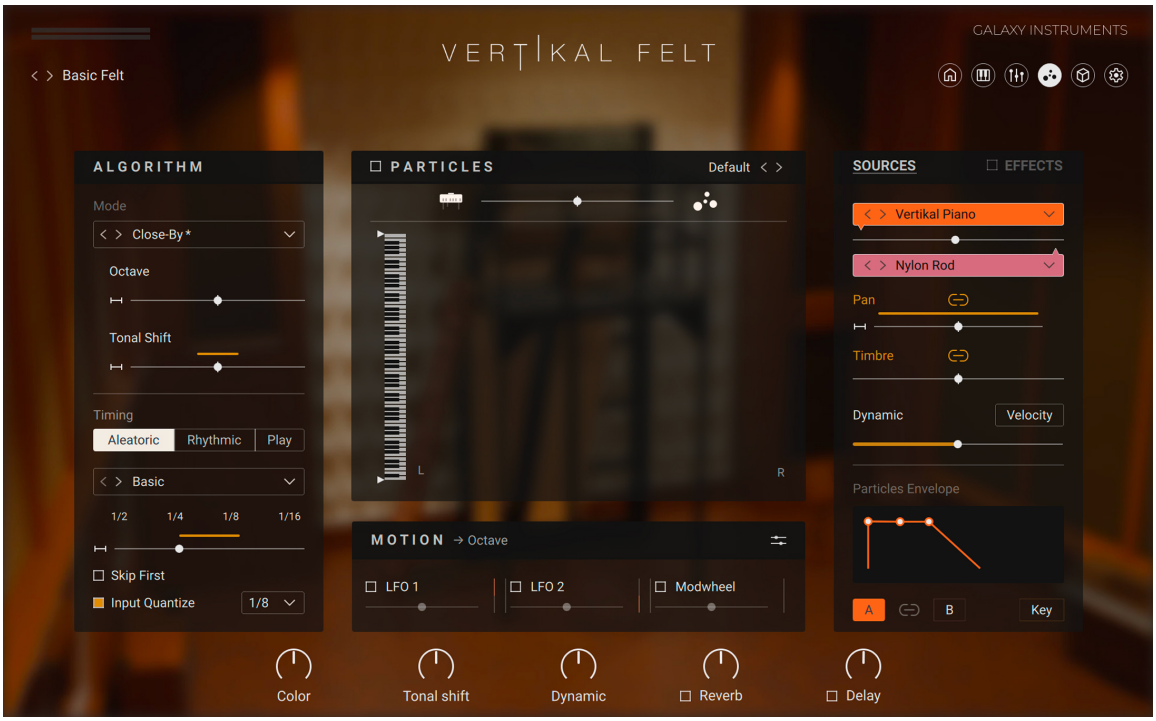



The central **Particles** section contains the following elements and controls:




- **Particles On/Off switch**: Turns the Particles engine on or off. This switch mirrors the on/off switch that appears when hovering the **Particles** icon in the main navigation at the top.
- **Particles Preset selector**: Shows the name of the loaded preset for the Particles engine. Clicking the preset name opens the Preset Browser where you can select another Particles preset. You can also click the little left/right arrow next to the preset name to quickly load the previous or next preset from the browser's result list without opening the browser. You can find more information in Particles Browser.
- **Piano/Particles Blend fader**: Adjusts the blend between the main piano sound on the left, and the particles on the right.
- **Piano Roll**: Shows the keys your are playing and lets you set the keyboard range for the Particles engine by dragging the two arrows up or down. Keys outside of this range will not trigger any particles.
- **Visual Display**: Shows an real-time animation of the particles as they are generated. As you play and hold keys on your keyboard, the additional notes generated by the Particles engine appear as colored circles whose position indicates their pitch (vertical axis) and stereo panning (horizontal axis), while their color indicates from which source sample(s) they are originating.

The parameters of the Particles engine are organized in the Algorithm section on the left side, the Motion section at the bottom, and the Sources and Effects sections on the right side:

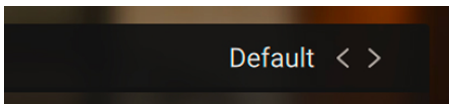



- **Algorithm section**: Adjusts the algorithm used to generate the particles. This will affect the timings and pitches at which the particles will be triggered. You can find more information in Algorithm section.
- **Motion section**: Lets you configure and assign modulation to the parameters on the Particles page. You can find more information in Motion section.
- **Sources section**: Selects and adjusts the two base samples triggered by the Particles engine. You can find more information in Sources section.
- **Effects section**: Configures the effects processing the particles. You can find more information in Effects section.

# Particles Browser

The Particles Browser lets you find and load Particles presets from the Vertikal factory library.

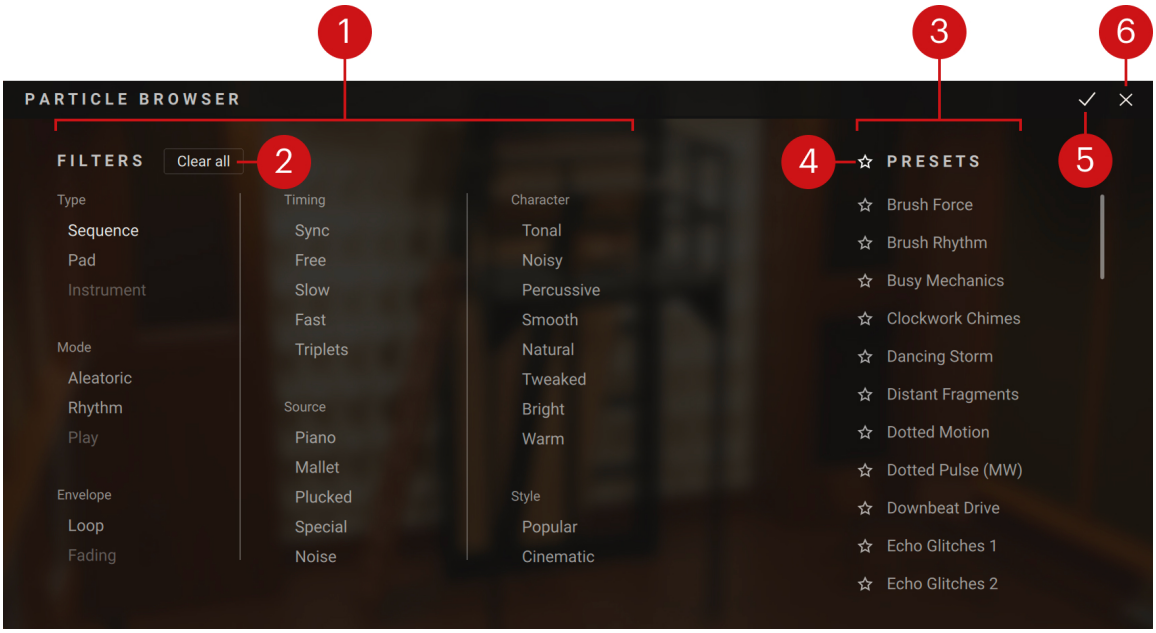
▶ To open the Particles Browser, click the name of the current Particles preset in the top left corner of the Particles page:




The Particles Browser follows this typical workflow:

- In the left part of the Browser, you can click the properties describing the type of particles that you are looking for.
- In the right part of the Browser, the list shows the presets matching the properties that you have selected.

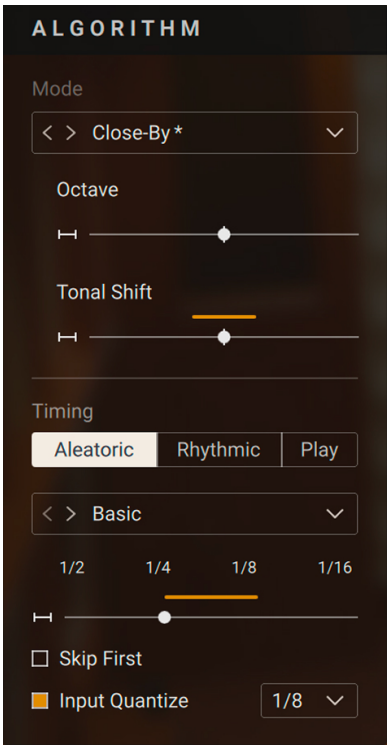
The Particles Browser provides the following controls:




1. **Tag filter**: You can click the tags describing the particles that you are looking for. The **Presets** list on the right is updated accordingly. The Tag filter is organized into three columns, from left to right: Types, Recordings, and Characters & Styles. As you select tags, the color intensity of the remaining tags indicates whether or not some presets are available:
   - Highlighted tags are already selected. You can click them to deselect them and widen the scope of your search.
   - Normal tags are not selected but they have matching presets in the current **Presets** list. You can select them to further narrow your search.
   - Faded tags are not selected and they do not have any matching presets in the current **Presets** list. You cannot select them, unless you deselect other tags first.
2. **Clear all:** Removes all filter tags from your selection.
3. **Presets**: Shows the presets matching the tags selected in the Tag filter on the left. You can click a preset to load it and try it directly on your keyboard or in your DAW. You can double-click a preset to load it and close the Browser.
4. **Favorites**: You can click the star icons to add or remove presets to/from your Favorites. The star icons are lit for the presets set as Favorites. This way, you can quickly create a custom collection of your most beloved presets. You can then display only your Favorites by clicking the topmost star icon next to the **Presets** header. Click the topmost star icon again to display also non-Favorite presets.
5. **OK (check mark)**: Keeps the selected preset loaded and closes the Particles Browser. This is the same as double-clicking the preset in the **Presets** list.
6. **Cancel (cross)**: Closes the Particles Browser without changing anything. Your instrument returns to its previous state.

## Algorithm section

The **Algorithm** section of the Particles page lets you fine-tune the moments and pitches at which the particles will be triggered:

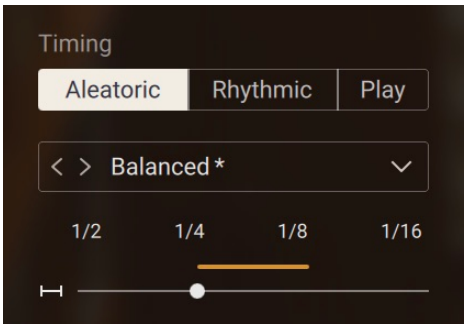



The section contains the following controls, from top to bottom:

- **Mode**: Selects from different presets for the **Octave** and **Tonal Shift** ranges. You can click the preset name to open a drop-down menu and select a preset, or click the arrow icons next to it to quickly load the previous or next preset from the list.
- **Octave range**: Shifts the octave range in which the particles are generated. You can adjust the range by clicking the range icon to the left of the slider and dragging up or down.
- **Tonal Shift range**: Shifts the range of tonal shift applied to the particles. Tonal Shift changes the playback speed of each sample, resulting in formant or character changes. You can adjust the range by clicking the range icon to the left of the slider and dragging up or down.
- **Timing**: Switches between three different modes that determine the timing and rhythm at which the particles are generated.
  - **Aleatoric**: Produces particles at random timing intervals according to the range set using the Aleatoric range slider.
  - **Rhythmic**: Produces particles in rhythmic patterns that can be programmed using a step sequencer.
  - **Play**: Lets you play the Particles sources directly from the keyboard, opening up new possibilities for expressive performance and sound design.
- **Skip First** (only in **Aleatoric** and **Rhythm** mode): Introduces a delay between your original note and the generated particles. When switched off, the particle cloud starts instantly when you press a key.
- **Input Quantize**: Quantizes the MIDI note input to the beat according to the note division set in the Quantize menu.
- **Quantize menu**: Sets the quantization value used when **Input Quantize** is on.

## Aleatoric mode

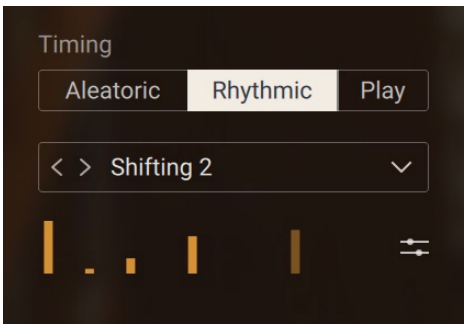
Aleatoric mode produces particles at random timing intervals according to the range set using the Aleatoric range slider.




- **Aleatoric mode**: Selects from different presets for the Aleatoric range, including synchronized modes. You can click the preset name to open a drop-down menu and select a preset, or click the arrow icons next to it to quickly load the previous or next preset from the list.
- **Aleatoric range**: Shifts the timing range in which consecutive particles are generated. You can adjust the range by clicking the range icon to the left of the slider and dragging up or down. If a synchronized timing mode is selected, you can set four different beat divisions to switch between by clicking the note values above the slider.

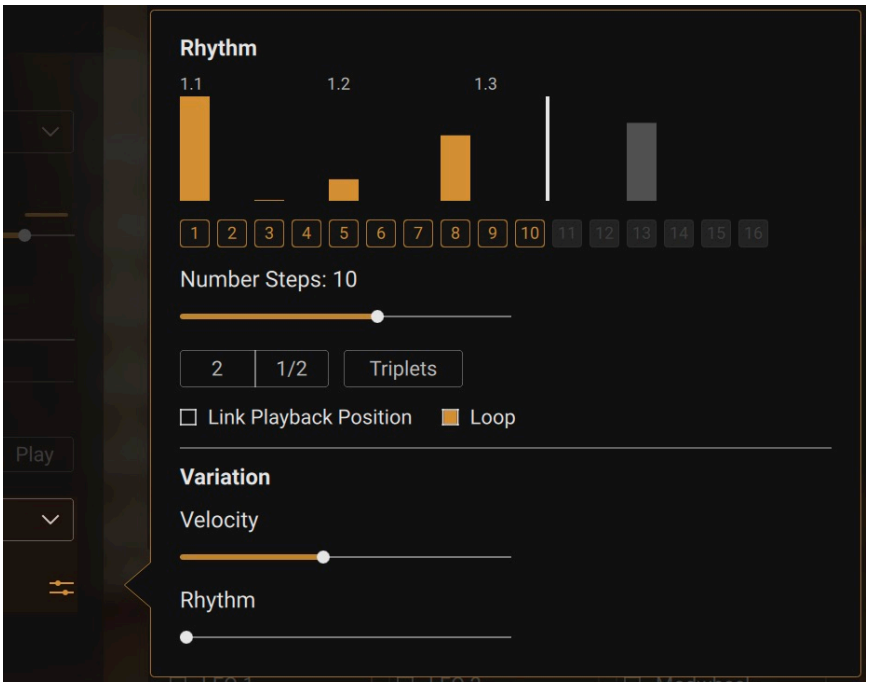
## Rhythmic mode

Rhythmic mode produces particles in rhythmic patterns that can be programmed using a step sequencer. By adding random variations of the steps' velocity and rhythmic position you can create patterns that evolve over time.




- **Rhythmic mode**: Selects from different presets for the Rythmic patterns. You can click the preset name to open a drop-down menu and select a preset, or click the arrow icons next to it to quickly load the previous or next preset from the list.
- **Pattern display**: Shows the current pattern and lets you open the Rhythmic settings by clicking on the pattern.
- **Rhythmic settings**: Opens the Rhythmic settings that let you edit the pattern in detail.

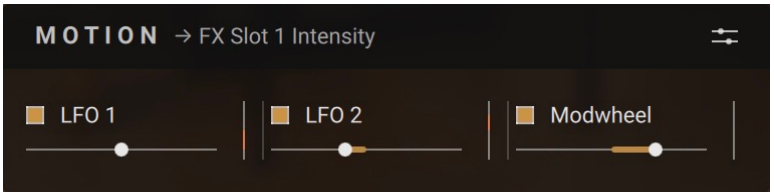
The Rhythmic settings contain the following options and controls:




- **Step sequencer**: Lets you program the pattern according to which the Particles are generated. Clicking and dragging a step up or down sets the velocity. You can switch steps on or off using the numbered buttons, creating pauses in the pattern.
- **Number Steps**: Sets the number of steps in the step sequencer and therefore the length of the pattern.
- **2**: Doubles the step sequencer's tempo.
- **1/2**: Halves the step sequencer's tempo.
- **Triplets**: Sets the step sequencer playback to triplets.
- **Link Playback Position**: Links the playback positions when multiple patterns are playing at the same time. Patterns triggered by playing more than one note will start at the current playback position of already playing patterns. Therefore, patterns stay in sync, creating a rhythmic chord sequence.
- **Loop**: Loops the step sequencer playback. When off, the pattern plays once for every key press.
- **Velocity Variation**: Randomizes the velocity values for each step.
- **Rhythm Variation**: Randomizes the rhythmic position for each step.

## Motion section

The **Motion** section on the Particles page lets you configure modulation sources and assign them to the parameters of the Particles engine:



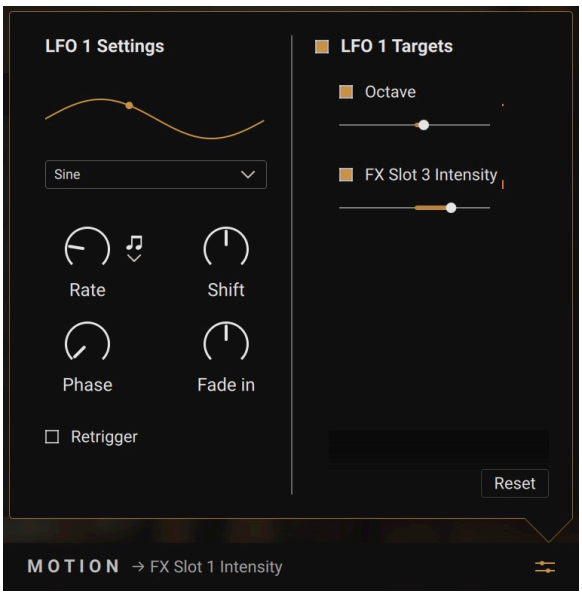

The section contains the following controls, from top to bottom:

- **Parameter name**: Shows the parameter currently selected for modulation assignment. You can select parameters by clicking on their control elements in the user interface.

- **Motion settings**: Opens the settings for the modulation sources. You can switch between the settings pages for each source by selecting **LFO 1**, **LFO 2**, or **Modwheel**/**Aftertouch**/**Velocity** (MIDI In) in the Motion section.
- **LFO 1 On/Off**: Switches the modulation from LFO 1 to the selected paramter on or off. LFOs, or low-frequency oscillators, produce cycling modulation according to their waveform and rate.
- **LFO 1 Amount**: Adjusts the strength of modulation assigned from LFO 1 to the selected parameter (shown in the Motion header). At center position, no modulation is applied. Moving the slider to the right applies positive (non-inverted) modulation. Moving it to the left applies negative (inverted) modulation.
- **LFO 2 On/Off**: Switches the modulation from LFO 2 to the selected paramter on or off. LFOs, or low-frequency oscillators, produce cycling modulation according to their waveform and rate.
- **LFO 2 Amount**: Adjusts the strength of modulation assigned from LFO 2 to the selected parameter (shown in the Motion header). Moving the slider to the right applies positive (non-inverted) modulation. Moving it to the left applies negative (inverted) modulation.
- **Midi Mod On/Off**: Switches the modulation from the Midi Mod source to the selected paramter on or off.
- **Midi Mod Amount**: Adjusts the strength of modulation assigned from the MIDI Mod source to the selected parameter (shown in the Motion header). Moving the slider to the right applies positive (non-inverted) modulation. Moving it to the left applies negative (inverted) modulation.

## LFO Settings

The settings for LFO 1 and LFO 2 contain the following options and controls:

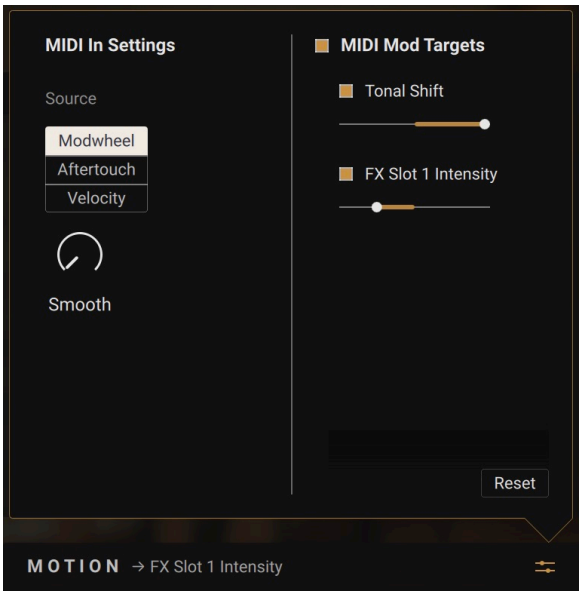



- **Waveform**: Selects the LFO waveform and therefore the shape of the cycling modulation. You can choose from basic waveforms as well as both stepped and smooth random modulation.
- **Rate**: Adjusts the frequency of the LFO and therefore the speed of the cycling modulation.
- **Sync**: Synchronizes the LFO to the tempo of your DAW and lets you set **Rate** in straight, dotted, or triplet time divisions.
- **Phase**: Adjusts the phase position of the LFO cycle when retriggered.
- **Retrigger**: Resets the LFO cycle at the beginning of each MIDI note, according to the position set using the **Phase** control.

- **Shift**: Skews the LFO waveform and therefore the shape and rhythm of the cycling modulation.
- **Fade in**: Adjusts the time it takes the LFO to fade in once a MIDI note is received.
- **LFO 1/2 Targets**: Lets you view and edit all modulation assignments for the selected modulation source. You can mute the modulation using the On/Off button, adjust the modulation amount, and delete the assignment by hovering the entry and clicking on the **X** icon.
- **Reset**: Removes all modulation assignments for the selected modulation source.

### MIDI Mod Settings

The settings for the MIDI Mod source contain the following options and controls:

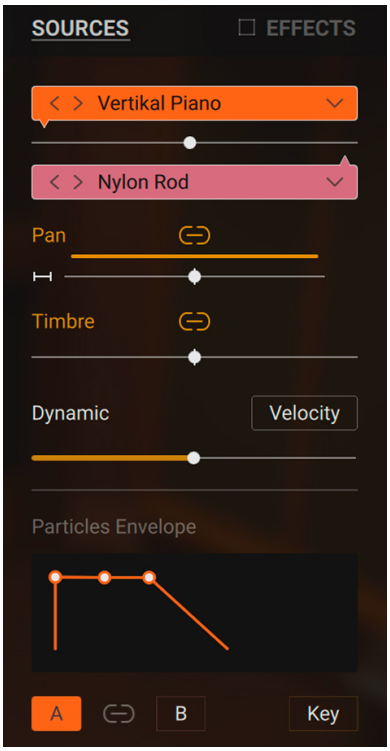



- **Source**: Selects either the **Modwheel**, **Aftertouch**, or **Velocity** as the MIDI Mod source.
- **Smooth**: Adjusts the smoothing applied to the MIDI Mod source. Short times create an immediate response with sharp transitions, whereas long times create a laid-back response with smooth transitions.
- **MIDI Mod Targets**: Lets you view and edit all modulation assignments for the selected modulation source. You can mute the modulation using the On/Off button, adjust the modulation amount, and delete the assignment by hovering the entry and clicking on the **X** icon.
- **Reset**: Removes all modulation assignments for the selected modulation source.

## Sources section

The Particles engine can blend two different samples as sources to generate the particles. The sources include the original piano sounds and alternative playing techniques, such as plucked or brushed strings. You can not only adjust the dynamic range of the particles generated from the sources, but also their panning and timbre, both at the same time or individually per source. By modulating the controls in the Sources section you can create evolving stereo textures and continuously changing sound colors.

You can set up the two sources in the **Sources** section of the Particles page:




The section contains the following controls, from top to bottom:

- **Source A selector**: Displays the name of the sample used as source A. Clicking the name opens the Source browser that lets you choose another sample. Alternatively, you can click the arrow icons to load the previous or next sample in the list.
- **Source Mix slider**: Adjusts the mix between source A and source B.
- **Source B selector**: Displays the name of the sample used as source B. Clicking the name opens the Source browser that lets you choose another sample. Alternatively, you can click the arrow icons to load the previous or next sample in the list.
- **Pan range**: Shifts the range of panning applied to the particles. The particles will be distributed in the stereo image according to this range. You can adjust the range by clicking the range icon to the left of the slider and dragging up or down. If link is active, both sources use the same settings. Deactivating link gives you individual controls for each source.
- **Timbre**: Changes the timbre (or tone color) of the particles from soft to hard by readjusting the sample mapping. The particles will be triggered at random timbres within this range. At center position, samples of all timbres will be played. Moving the slider to the right focuses the samples on harder sounds, while moving it to the left focuses them on softer sounds. If link is active, both sources use the same settings. Deactivating link gives you individual controls for each source.
- **Dynamic**: Adjusts the dynamic range of the particles by adjusting their volume while still using the same velocity samples (these are set by the **Timbre** slider). The particles will be triggered at random velocities within this range. Drag left to shrink, or drag right to expand the dynamic range.
- **Velocity**: When this button is switched on, the particles' timbre also reacts to the incoming MIDI velocities, making the Particles engine dynamically playable.

- **Envelopes**: Let you control the volume contour of individual particles as well as the entire particle cloud using ADSR envelopes, consisting of **Attack**, **Decay**, **Sustain**, and **Release** stages. By modulating envelope parameters, you can create evolving sounds that respond dynamically to your performance.
  - **Source Envelope A/B**: Selecting the **A** or **B** envelopes lets you adjust the volume contour of the individual particles generated from source A or B, respectively. By activating link you can apply the same envelope to all particles generated by source A and B. You can adjust the envelope stages by moving the points in the envelope graph.
  - **Key Envelope**: Selecting the **Key** envelope lets you adjust the overall volume contour of the particle cloud. The Release Particles button next to the envelope graph switches the generation of particles during the release stage on or off. You can adjust the envelope stages by moving the points in the envelope graph.

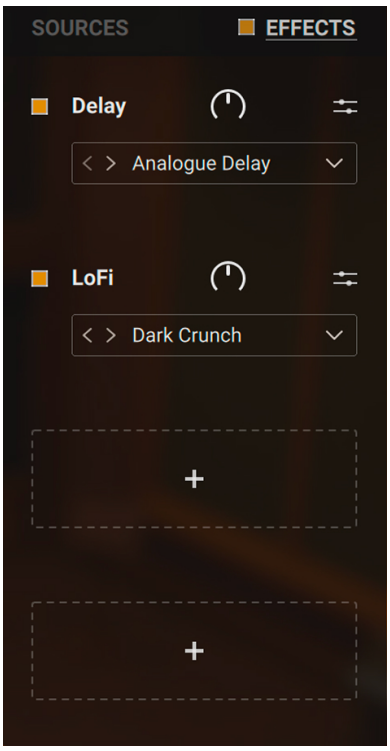
## Effects section

The Particles engine provides four freely assignable effects that let you shape the generated particles independently of the main piano sound. The effects are processed in a chain from top to bottom. Different effect presets and macro controls make it easy to transform the particle cloud, from subtle spatial textures to more experimental sounds.



You can modulate the macro control for each effect, and assign the controls In the Effects settings panel to the macro. (similar to the fx engine in Vocal Colors.)

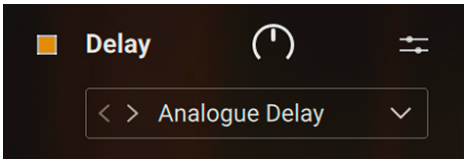
You can set find the four effects in the **Effects** section of the Particles page:




- **Effects On/Off**: Switches all four effects on or off at the same time.
- **Move effect**: Hovering an effect reveals a dotted handle that you can click and drag to move the effect to another position in the effects chain.

- **Empty slot (+ icon)**: Opens the Effects browser that lets you choose an effect.

Each of the effects provides the following controls:



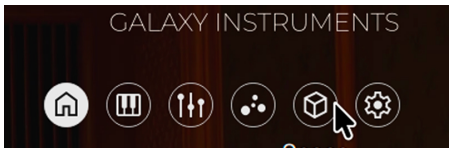

- **Effect On/Off switch**: Switches the individual effect on or off.
- **Effect Macro**: Adjusts effect parameters as assigned in the Effect settings. The macros are assigned to key effect parameters by default, letting you adjust the intensity and character of the effect using one control.
- **Effect Settings**: Opens the Effect settings that let you edit the selected effect in detail. The available controls are specific to each effect. Hovering controls in the Effect settings reveals arrow icons that let you create a macro assignment for this control. Click and drag the arrows up or down to define the range of macro control applied to this parameter.
- **Effect Preset selector**: Clicking the name opens the Effects browser that lets you choose another effect. Alternatively, you can click the arrow icons to load the previous or next effect preset in the list.

ⓘ The **Effects** section on the Particles page affects only the particles. Effects for the main piano sound are available on the Effect and Space pages. You can find more information in Effect page and Space page for more information.

# 9. Space page

The Space page lets you configure a reverberation and a delay unit for your instrument.

▶ Click **Space** at the top right of the instrument to open the Space page.




The Space page is split into two sections:




- **Reverb section**: Adjusts the reverberation unit. You can find more information in Reverb.
- **Delay section**: Adjusts the delay unit. You can find more information in Delay.

> The effects in this page affect only the main piano sound. Other effects dedicated to the particles are available in the **Effects** section of the Particles page. You can find more information in Effects section for more information.

## Reverb

The Reverb section allows you to apply a reverb effect to the main piano sound.

At the top of the Reverb section, the following controls are available:



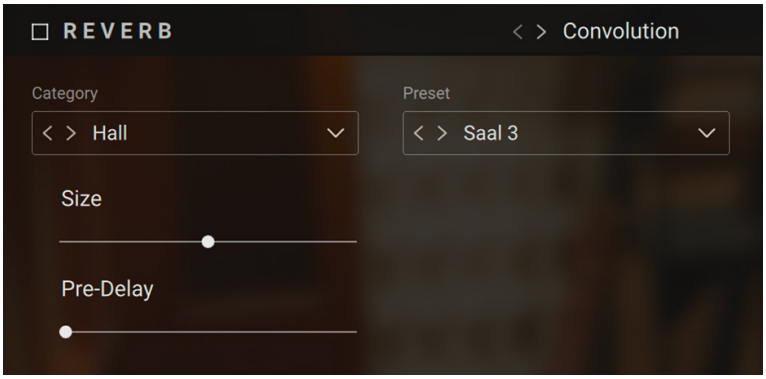
- **Reverb On/Off switch**: Turns the reverb on or off. This has the same effect as the Reverb On/Off switch in the Performance controls at the bottom of the window. You can find more information in Vertikal overview for more information.
- **Reverb Engine menu**: Selects from four Reverb engines: **Convolution**, **Algorithmic**, **Plate**, and **Raum**. The reverb parameters below will depend on the selected engine.

> ⓘ You can adjust the overall amount of reverb applied to your instrument using the **Reverb** knob located in the Performance controls at the bottom of the instrument. You can find more information in Vertikal overview for more information.

## Convolution reverb

By selecting **Convolution** in the Reverb Engine menu, you activate the Convolution reverb. The convolution reverb uses impulse responses of various vintage reverb units, halls, rooms, and other objects and places to recreate those acoustic situations.

The Convolution reverb contains the following controls:

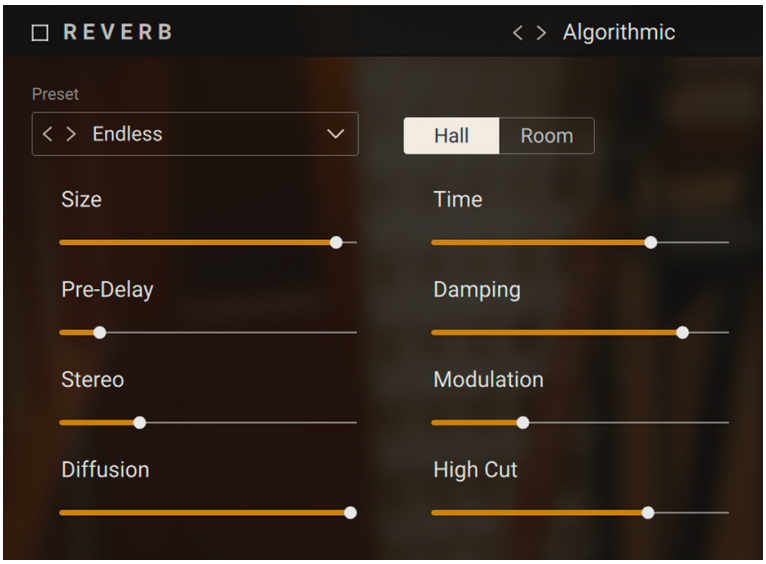



- **Category selector** (left menu): Selects the category of impulse responses. You can also click the little arrows on the left to switch to the next or previous entry from the menu.
- **IR selector** (right menu): Selects an impulse response from the selected category. You can also click the little arrows on the left to switch to the next or previous entry from the menu.
- **Size**: Adjusts the size of the reverb effect by lengthening or shortening the selected impulse response.
- **Pre Delay**: Adjusts the delay before the reverb starts.

## Algorithmic reverb

By selecting **Algorithmic** in the Reverb Engine menu, you activate the Algorithmic reverb.

The Algorithmic reverb contains the following controls:

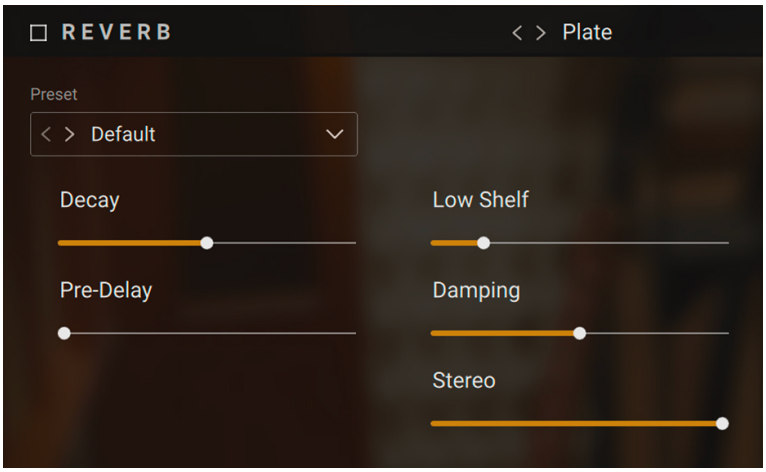



- **Preset selector**: Selects from various predefined settings for the effect. You can select a preset by clicking the left and right arrows, or open the drop-down menu by clicking the preset name.
- **Hall/Room selector**: Selects between two reverberation modes simulating the sound character of a hall or a room.
- **Size**: Adjusts the size of the hall or room simulated by the reverb effect. Higher values replicate larger spaces.
- **Time**: Adjusts the duration of the reverb effect.
- **Pre-Delay:** Introduces a short amount of delay before the reverb takes effect.
- **Damping**: Adjusts the amount of absorption in the room simulated by the reverb effect. Higher values result in more absorption.
- **Stereo**: Controls the stereo image of the reverb effect. Higher values result in a wider stereo image.
- **Modulation**: Adjusts the amount of modulation applied to the reverb effect. At full left, no modulation is applied.
- **Diffusion**: Adjusts the density of the reflections in the room simulated by the reverb effect.
- **High Cut**:: Cuts the high-frequency content of the reverb signal.

## Plate reverb

By selecting **Plate** in the Reverb Engine menu, you activate the Plate reverb.

The Plate reverb contains the following controls:




- **Preset selector**: Selects from various predefined settings for the effect. You can select a preset by clicking the left and right arrows, or open the drop-down menu by clicking the preset name.
- **Decay:** Adjusts the duration of the reverb effect.
- **Low Shelf:** Attenuates or amplifies the low-frequency content of the reverb signal.
- **Pre-Delay:** Introduces a short amount of delay before the reverb takes effect.
- **Damping**: Adjusts the amount of absorption in the room simulated by the reverb effect. Higher values result in more absorption.
- **Stereo**: Controls the stereo image of the reverb effect. Higher values result in a wider stereo image.

## Raum reverb

By selecting **Raum** in the Reverb Engine menu, you activate the Raum reverb.

The Raum reverb contains the following controls:




- **Preset selector**: Selects from various predefined settings for the effect. You can select a preset by clicking the left and right arrows, or open the drop-down menu by clicking the preset name.

- **Category**: Selects one of two reverb algorithms, Grounded and Airy.
  - **Grounded** is based on the paradigm of a room with strong early reflections and a dense reverb tail. The reverb size ranges from tiny ambiences to large chambers.
  - **Airy** is based on the paradigm of a hall with naturally dispersed early reflections and a smooth reverb tail. The reverb size ranges from medium-sized chambers to large cathedrals and beyond.
- **Sparse**: Switches between two density modes for the reflection pattern of the reverb. When activated, the reflection pattern is dispersed with clearly discernible reflections. When deactivated, the reflection pattern forms a uniform reverb tail.
- **Pre-Delay**: Adjusts the duration of the predelay, which is the time it takes for the reverb to set in. Increasing the predelay adds separation between the input signal and the reverb signal.
- **Feedback**: Adjusts the level of the signal fed back from the output of the predelay to its input, increasing the number of delay repetitions. Turning the control to the right creates echo effects that are then processed by the selected reverb algorithm. A built-in limiter controls the level when high feedback settings are used with loud input signals.
- **Low Shelf**: Attenuates the low-frequency content of the reverb and the predelay's feedback signal. Turning the control to the right increases the attenuation, and turning it fully left switches the filter off.
- **High Cut**: Attenuates the high-frequency content of the reverb and the predelay's feedback signal. Turning the control to the left increases the attenuation, and turning it fully right switches the filter off.
- **Decay**: Adjusts the length of the reverb tail. Turning the control to the right changes the reverb time from short to long. Only available in **Grounded** and **Airy** mode.
- **Size**: Adjusts the swell and reflection pattern of the reverb, creating the impression of differently sized spaces. Turning the control to the right changes the size from small to large.
- **Modulation**: Adjusts the amount of movement added to the reverb by changing internal parameters of the reverb over time. Turning the control to the right takes the reverb from lush to strongly detuned sounds.
- **Damping**: Adjusts the tonal quality of the reverb from bright to dark. Turning the control to the right attenuates the high-frequency content of the reverb.

## Delay

The Delay section allows you to apply a delay effect to the main piano sound.

At the top of the Delay section, the following controls are available:



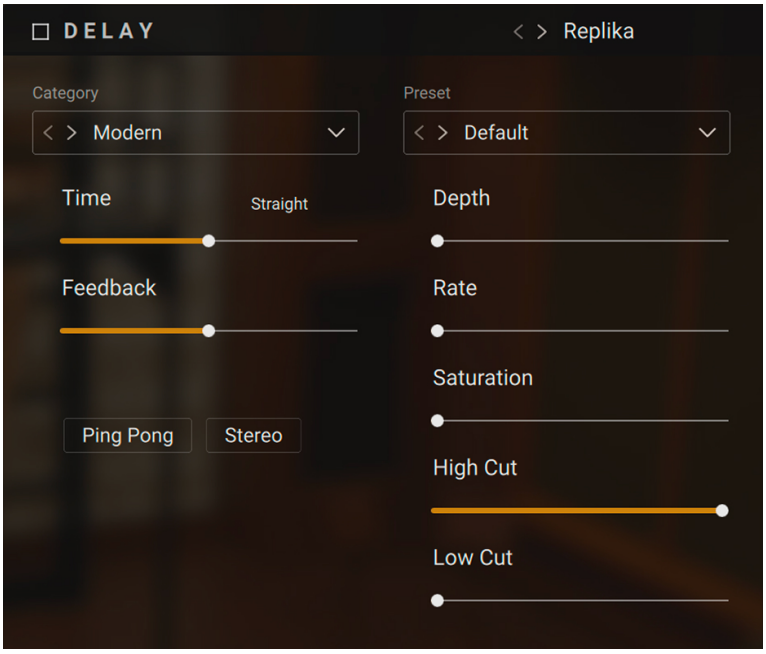

- **Delay On/Off switch**: Turns the delay on or off. This has the same effect as the Delay On/Off switch in the Performance controls at the bottom of the window. You can find more information in Vertikal overview for more information.
- **Delay Engine menu**: Selects from three Delay engines: **Replika**, **Twin Delay**, and **Psyche Delay**. The delay parameters below will depend on the selected engine.

> You can adjust the overall amount of delay applied to your instrument using the **Delay** knob located in the Performance controls at the bottom of the instrument. You can find more information in Vertikal overview for more information.

## Replika

By selecting **Replika** in the Delay Engine menu, you activate the Replika delay. The Replika delay is a full-featured delay unit based on the Native Instruments Replika XT delay plug-in. Notably, it includes the **five delay styles** from Replika XT: Modern, Analog, Vintage, Tape and Diffusion, each with its own unique sound and behavior.

The Replika delay contains the following controls:




- **Preset selector** (left menu): Selects from various predefined settings for the effect. You can select a preset by clicking on the left and right arrows, or open the drop-down menu by clicking on the preset name.

- **Type selector** (right menu): Selects between five different delay styles that determine the basic sound character. The last three controls of the delay vary with each type.
  - **Modern**: Clean and defined delay with adjustable, tube-like saturation. The built-in modulation changes the delay time periodically. This shifts the timing and pitch of the delay signal, adding depth and movement to the sound. Unlike the built-in modulation, manual adjustments of the delay time do not alter the pitch of the delay signal.
  - **Analogue**: Dark and hazy emulation of BBD (Bucket Brigade Device) delays, which include old analogue studio effects as well as many contemporary guitar pedals. The sound of the delay depends on the delay time: As the delay time is increased, the delay repeats will become darker, with more noise and distortion being introduced to the signal. The built-in modulation changes the delay time periodically. This shifts the timing and pitch of the delay signal, adding depth and movement to the sound.
  - **Tape**: Textured and lively emulation of classic tape delays. It gives you full control over their unique properties, including the amount of saturation, the age of the tape, and the intensity of flutter.
  - **Vintage**: Warm and crunchy emulation of early digital delay effects. The sound of the delay depends on the delay time. As the delay time is increased, the delay repeats will become grittier, with more digital artifacts being introduced to the signal. The built-in modulation changes the delay time periodically. This shifts the timing and pitch of the delay signal, adding depth and movement to the sound.
  - **Diffusion**: Clean delay combined with a unique reverb effect. It can be used to create a wide range of different ambiences, from tight and resonant to unnaturally vast spaces.
- **Time**: Adjusts the delay time. Depending on the selected Sync mode, the delay time is either freely adjusted in milliseconds or synchronized to Kontakt's global tempo, which is the tempo of your DAW is Kontakt is running as a plug-in.
- **Sync Mode menu**: Selects between four modes that determine the behavior of the **Time** control.
  - **Free**: The delay time can bee freely adjusted in milliseconds.
  - **Straight**: The delay time can be adjusted in even note divisions (1/16, 1/8, 1/4, etc.) relative to Kontakt's global tempo.
  - **Dotted**: The delay time can be adjusted in dotted note divisions (1/16d, 1/8d, 1/4d, etc.) relative to Kontakt's global tempo.
  - **Triplets**: The delay time can be adjusted in triplet note divisions (1/16t, 1/8t, 1/4t, etc.) relative to Kontakt's global tempo.
- **Feedback**: Adjusts the level of the signal that is being fed back to the delay's input. Increasing the feedback level creates more delay repeats that decay over time. Feedback levels of 100 % and above are possible, allowing the delay repeats to build up until the point of self-oscillation.
- **Low Cut**: Attenuates low-frequency content in the feedback path of the delay using a low-cut filter. With the slider at full left, the filter is off. Moving it to the right raises the cutoff frequency of the filter, resulting in a brighter tone of the delay.
- **High Cut**: Attenuates high-frequency content in the feedback path of the delay using a high-cut filter. With the slider at full right, the filter is off. Moving it to the left lowers the cutoff frequency of the filter, resulting in a darker tone of the delay.
- **Ping Pong**: Turns Ping Pong mode on or off. In Ping Pong mode, the delay repeats are panned hard left and right in an alternating pattern.

The remaining controls depend on the delay type selected in the **Type** selector, as described below.

## Type: Modern

- **Stereo**: Switches between stereo and mono operation for the built-in modulation. When activated, the modulation between the left and the right stereo channels is offset in time, resulting in a wide stereo effect. When deactivated, the modulation affects both the left and the right stereo channels in the same way.
- **Depth**: Adjusts the amount of built-in modulation applied to the delay time.
- **Rate**: Adjusts the speed of the built-in modulation.
- **Saturation**: Adds tube-like saturation at the delay input. With the control at full left the saturation is bypassed, moving it to the right pushes the sound from subtle warmth to overdrive. The amount of saturation depends on the input level.

## Type: Analogue

- **Stereo**: Switches between stereo and mono operation for the built-in modulation. When activated, the modulation between the left and the right stereo channels is offset in time, resulting in a wide stereo effect. When deactivated, the modulation affects both the left and the right stereo channels in the same way.
- **Depth**: Adjusts the amount of built-in modulation applied to the delay time.
- **Rate**: Adjusts the speed of the built-in modulation.
- **BBD Type**: Selects one of four BBD delay models: **Clean**, **Warm**, **Dark**, **Grunge**. The character of the four models ranges from subtle filtering and distortion (**Clean**, **Warm**) to a highly degraded sound (**Dark**, **Grunge**).

## Type: Tape

- **Noise**: Switches the tape hiss on or off. The amount of hiss depends on the **Tape Age** control.
- **Saturation**: Adjusts the amount of tape saturation from a clean sound to overdrive.
- **Tape Age**: Enhances the characteristics of an aging tape, like limited high-frequency response and hiss (depending on the **Noise** button's state).
- **Flutter**: Increases the effects introduced by mechanical imperfections of the tape delay's motor and tape transport, resulting in pitch variations over time.

## Type: Vintage

- **Stereo**: Switches between stereo and mono operation for the built-in modulation. When activated, the modulation between the left and the right stereo channels is offset in time, resulting in a wide stereo effect. When deactivated, the modulation affects both the left and the right stereo channels in the same way.
- **Depth**: Adjusts the amount of built-in modulation applied to the delay time.
- **Rate**: Adjusts the speed of the built-in modulation.
- **Quality**: Selects one of four quality settings for the delay: **High**, **Medium**, **Low**, **Crunch**. The **High** setting has a bright, subtly textured sound. **Medium** and **Low** sound darker and grittier. **Crunch** has a bright sound but also introduces a lot of digital artifacts to the signal.

## Type: Diffusion

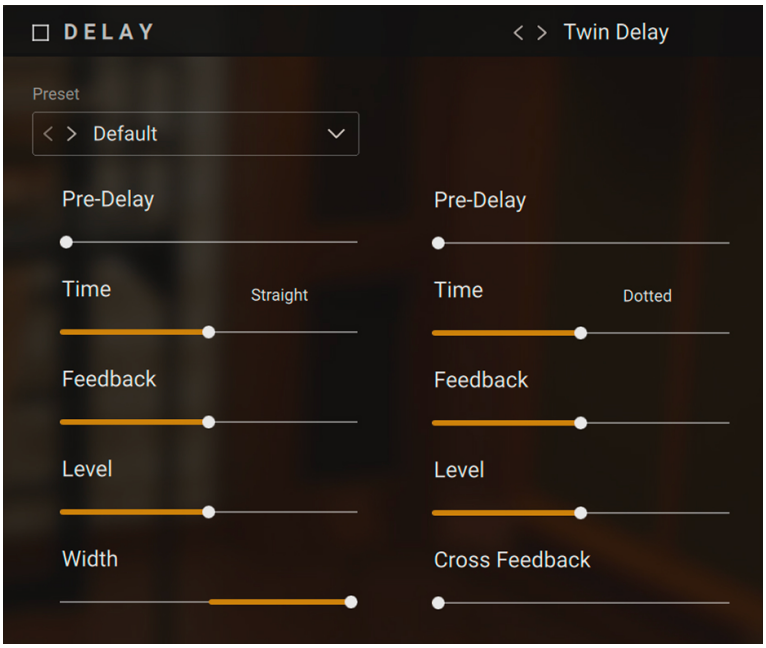
- **Dense**: Switches between two density settings for the reflection pattern of the reverb effect. When activated, the reflection pattern is dense and washed out. When deactivated, the reflection pattern is sparse with a granular quality.

- **Amount**: Adjusts the amount of diffusion applied to the delay signal, resulting in a reverb effect. High settings make the delay appear out of sync, so low settings are recommended if the rhythmic timing of the delay is essential.
- **Size**: Adjusts the swell, reflection pattern and decay of the reverb effect, giving the impression of differently sized spaces.
- **Modulation**: Adjusts the depth and speed of modulation applied to the diffusion, shifting the timing and pitch of the reflections for a wide reverb effect.

## Twin Delay

By selecting **Twin Delay** in the Delay Engine menu, you activate the Twin delay. The Twin delay combines two parallel delay channels for advanced stereo effects. The two delays are dedicated to the left and right stereo channel, respectively. You can use them to create rhythmic echoes that bounce through the stereo image.

The Twin delay contains the following controls:




- **Preset selector**: Selects from various predefined settings for the effect. You can select a preset by clicking the left and right arrows, or open the drop-down menu by clicking the preset name.

The following controls are available for each of the left and right delay channels independently:

- **Pre-Delay**: Adjusts the duration of the initial delay added to the channel. This predelay is independent of the **Time** control and does not affect the delay repeats. To achieve classic ping-pong echoes, set the same **Time** for both channels and increase the **Pre-Delay** on one of them.
- **Time**: Adjusts the delay time. Depending on the selected Sync mode, the delay time is either freely adjusted in milliseconds or synchronized to Kontakt's global tempo, which is the tempo of your DAW is Kontakt is running as a plug-in.

- **Sync Mode menu**: Selects between four modes that determine the behavior of the **Time** control.
  - **Free**: The delay time can bee freely adjusted in milliseconds.
  - **Straight**: The delay time can be adjusted in even note divisions (1/16, 1/8, 1/4, etc.) relative to Kontakt's global tempo.
  - **Dotted**: The delay time can be adjusted in dotted note divisions (1/16d, 1/8d, 1/4d, etc.) relative to Kontakt's global tempo.
  - **Triplets**: The delay time can be adjusted in triplet note divisions (1/16t, 1/8t, 1/4t, etc.) relative to Kontakt's global tempo.
- **Feedback**: Adjusts the amount of channel output that is sent back into the channel input. Moving **Feedback** to the right increases the number of delay repetitions.
- **Level**: Adjusts the output level of the delay channel.

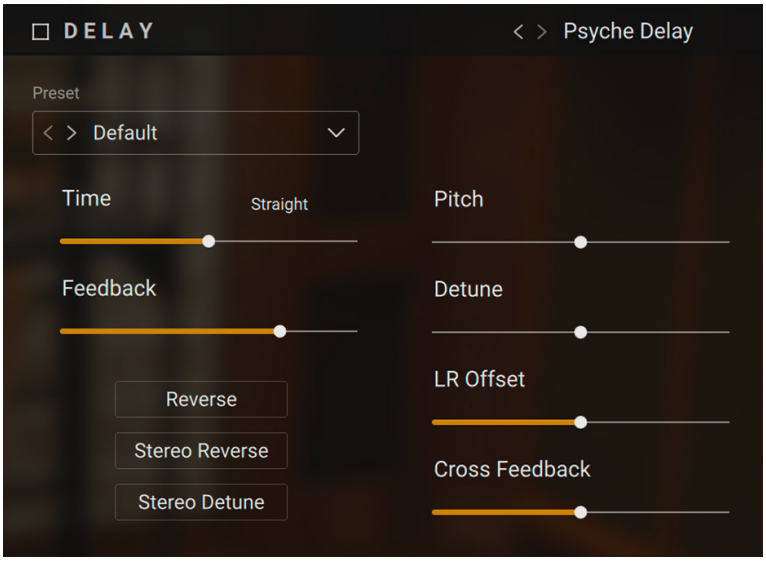
The following controls act globally and affect both delay channels simultaneously.

- **Width**: Adjusts the stereo image of the delay signal. At center position, the signal is mono. Turning the control to the right increases the width of the stereo image. Turning the control to the left increases the width of the stereo image and flips the left and right stereo channel.
- **Cross Feedback**: Adjusts the amount of cross-feedback, which feeds the left channel output back into the right channel input and vice versa.

## Psyche Delay

By selecting **Psyche Delay** in the Delay Engine menu, you activate the Psyche Delay. The Psyche Delay is a stereo delay effect that produces a range of atmospheric ambient echoes and reverse effects reminiscent of the so-called backwards tape sound of the 1960s.

The Psyche Delay contains the following controls:



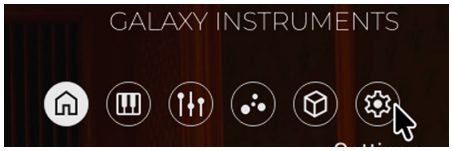

- **Preset selector**: Selects from various predefined settings for the effect. You can select a preset by clicking the left and right arrows, or open the drop-down menu by clicking the preset name.
- **Time**: Adjusts the delay time. Depending on the selected Sync mode, the delay time is either freely adjusted in milliseconds or synchronized to Kontakt's global tempo, which is the tempo of your DAW is Kontakt is running as a plug-in.

- **Sync Mode menu**: Selects between four modes that determine the behavior of the **Time** control.
  - **Free**: The delay time can bee freely adjusted in milliseconds.
  - **Straight**: The delay time can be adjusted in even note divisions (1/16, 1/8, 1/4, etc.) relative to Kontakt's global tempo.
  - **Dotted**: The delay time can be adjusted in dotted note divisions (1/16d, 1/8d, 1/4d, etc.) relative to Kontakt's global tempo.
  - **Triplets**: The delay time can be adjusted in triplet note divisions (1/16t, 1/8t, 1/4t, etc.) relative to Kontakt's global tempo.
- **Feedback**: Adjusts the amount of delay output that is sent back into the delay input. Moving **Feedback** to the right increases the number of delay repetitions.
- **Reverse**: Reverses the playback of subsequent delay repeats.
- **Stereo Reverse**: Removes the reverse effect from the right stereo channel, thus only delay repeats on the left channel are reversed.
- **Stereo Detune**: Applies the **Detune** effect to both the left and right stereo channel.
- **Pitch**: Adjusts the pitch of the echo repeats in the range of -12 to +12 semitones. Combined with **Feedback** you can use this to create progressively harmonized echo cascades.
- **Detune**: Adjusts the pitch of the echo repeats on the left stereo channel in the range of -50 to +50 cents. Combined with **Feedback** and **Cross Feedback** you can use this to create progressively detuned echo cascades.
- **LR Offset**: Enhances the stereo image of the delay by adding a timing offset between the left and right channels.
- **Cross Feedback**: Adjusts the amount of cross-feedback, which feeds the left channel output back into the right channel input and vice versa.

# 10. Settings page

The Settings page provides global settings regarding the sound and the control of your instrument.

▶ Click **Settings** at the top right of the instrument to open the Settings page.

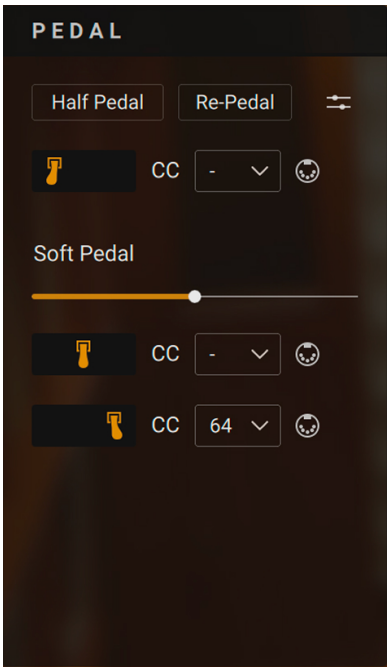



The Settings page is split into three sections:




- **Pedal section**: Adjusts the pedal settings. You can find more information in Pedal section.
- **Tuning section**: Adjusts the tuning of the instrument. You can find more information in Tuning section.
- **Velocity section**: Adjusts the velocity response of the instrument. You can find more information in Velocity section.

# Pedal section

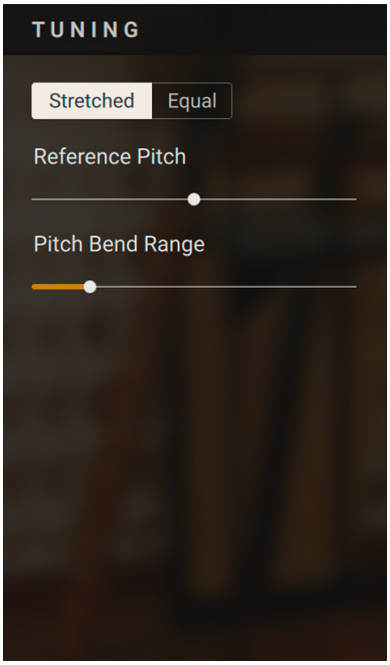



- **Half Pedal**: Enables the use of a continuous sustain pedal for half-pedaling, which affects the release time and the amount of resonance. For half-pedaling you need a special continuous sustain pedal. If the **Half Pedal** button is off, a continuous sustain pedal is transformed into an on/off switch.
- **Re-Pedal**: Enables re-pedaling. When on, the sustain pedal is depressed during note release and the remaining sound sustains.
- **Pedal settings**: Opens the settings for the sustain pedal ranges. **Pedal Limit** sets the threshold for the sustain pedal to take effect. **Half Pedal Range** adjusts the range for half-pedaling, which simulates the dampers slightly touching the strings. The visualization shows the ranges as well as the current sustain pedal value.
- **Soft Pedal settings** (left pedal icon): Adjust the behavior of the soft pedal. The soft pedal softens both the loudness and the timbre of the piano.
  - **Soft Pedal CC**: Shows the MIDI CC number assigned to the soft pedal. You can choose another MIDI CC number by clicking the display and selecting the desired number from the drop-down menu. Alternatively you can click the **MIDI Learn button** (MIDI socket icon) next to the **CC** field and move the desired control element on your MIDI controller to quickly assign it to the soft pedal.
  - **Soft Pedal Strength**: Adjusts how much the sound should be softened when pressing the pedal. By default the slider is in the middle (100 %). From that middle position, dragging the slider left will attenuate the original soft pedal effect, while dragging it right will amplify it.
- **Sostenuto Pedal settings** (middle pedal icon): Adjust the behavior of the sostenuto pedal. **Sostenuto Pedal CC**: Shows the MIDI CC number assigned to the sostenuto pedal. You can choose another MIDI CC number by clicking the display and selecting the desired number from the drop-down menu. Alternatively you can click the **MIDI Learn button** (MIDI socket icon) next to the **CC** field and move the desired control element on your MIDI controller to quickly assign it to the sostenuto pedal.

- **Sustain Pedal settings** (right pedal icon): Adjust the behavior of the sustain pedal. **Sustain Pedal CC**: Shows the MIDI CC number assigned to the sustain pedal. You can choose another MIDI CC number by clicking the display and selecting the desired number from the drop-down menu. Alternatively you can click the **MIDI Learn button** (MIDI socket icon) next to the **CC** field and move the desired control element on your MIDI controller to quickly assign it to the sustain pedal.

## Tuning section

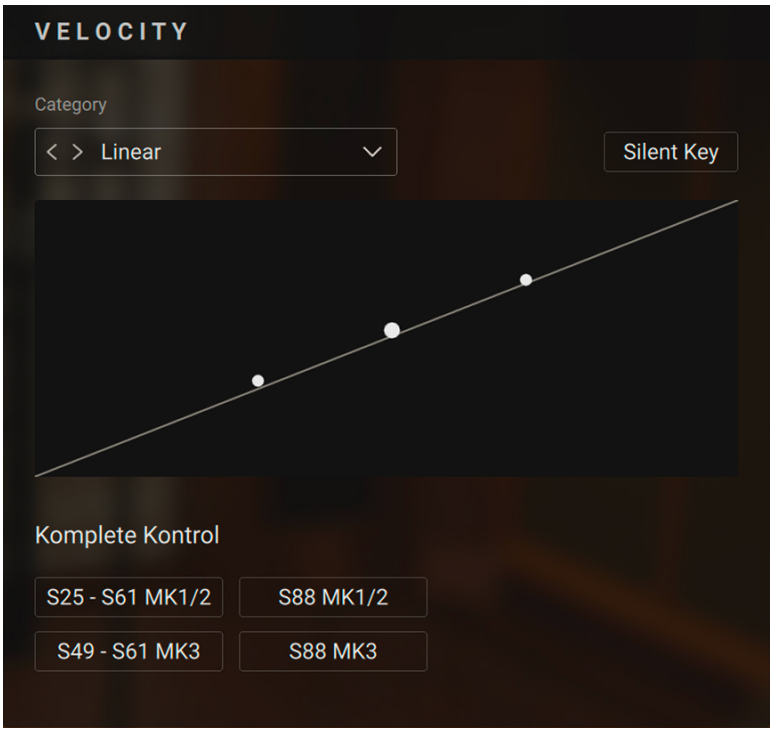
The **Tuning** section contains settings affecting the pitch and tune of the instrument. It contains the following controls:




- **Stretched/Equal selector**: Switches the tuning system (or temperament) of the instrument between **Stretched** and **Equal**. The default setting is **Stretched**, which is the way the piano was tuned for sampling. Stretched tuning accommodates the natural "inharmonicity" of metal strings, which stretch harmonics beyond the strings' ideal frequencies. Therefore, to make the instrument sound more harmonically pleasing (or "musical"), higher notes are stretched upwards. You can otherwise switch to **Equal** temperament, which is the most common tuning system used in Western music.
- **Reference Pitch**: Adjusts the instrument's basic pitch, from 436 Hz to 444 Hz.
- **Pitch Bend Range**: Selects the pitch range available on the Pitchbend wheel, in semitones.

## Velocity section

The **Velocity** section lets you adapt the instrument's velocity response to your keyboard and to your way of playing. It contains the following controls:




- **Velocity Curve menu**: Selects from different velocity curve presets. The selected velocity curve is shown in the display below.
- **Silent Key**: Turns the Silent Key function on or off. When Silent Key is on, very low velocities result in no sound, as on a grand piano. Fabric and mechanical noises will be triggered though and the overtone function is active as well as the virtual string is free to vibrate sympathetically.
- **Velocity Response display**: Shows the current velocity response. Starting from a velocity curve preset, you can customize the response by dragging the three white dots on the display: The middle dot adjusts the position of the inflection point, and the other two dots adjust the lower and upper part of the curve.
- **Kontrol Keyboards Preset buttons**: Click either button to quickly select the velocity curve of that particular Kontrol keyboard. These buttons are shortcuts for the corresponding entries in the Velocity Curve menu above.

# 11. Credits

**Produced by:** Uli Baronowsky with Stephan Lembke and Achim Reinhardt for Galaxy Instruments and Native Instruments

**Product Design:** Galaxy Instruments, Tolga Özdemir, Martina Francone, Francesco Sabatini, Frank Elting

**Kontakt Development:** Achim Reinhardt

**KUI Development:** Till Weinrich, Achim Reinhardt

**User Interface Design:** Martina Francone

**3D Modeling:** Corrado Piscitelli, Ivana Verze, Achim Reinhardt

**Product Management:** Áine O'Flaherty, Konstantin Hess

**Piano Technician:** Carsten Schulz, Teresa Hauptmann, Andre Wedel

**Sample Recording:** Uli Baronowsky, Stephan Lembke, Achim Reinhardt

**Assitant Engineer:** Leon Roggenkamp, Antonio Pulli

**Recorded at:** Saal 3, Funkhaus Berlin

**Sample Post Production:** Uli Baronowsky, Stephan Lembke, Leon Roggenkamp

**Preset Design:** Uli Baronowsky, Stephan Lembke, Achim Reinhardt, Andreas Rogge, Jamil Samad

**Musical Consultants:** Mark Joggerst

**Quality Assurance and Finalization:** Elad Twito

**Marketing:** Andre Bajorat, Simon Harris

**Documentation:** Nicolas Sidi, Jan Ola Korte

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