

RETRO MACHINES MK2

 **NATIVE INSTRUMENTS**

THE FUTURE OF SOUND

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2. Welcome to RETRO MACHINES MK2

RETRO MACHINES MK2 is a collection of 16 definitive analog synthesizers and keyboards, lovingly sampled and refined for KONTAKT and the free KONTAKT PLAYER.

It covers the classic, the idiosyncratic, and the exotic instruments that defined electronic pop in the 70s and 80s. Today, the originals are hard to find, expensive, and often temperamental. RETRO MACHINES MK2 gives you thick, creamy, analog sound without the repairs and with all the benefits of state-of-the-art software technology.



2.1. Document Conventions

In this document the following formatting is used to highlight useful information:

<i>Italics</i>	Indicates paths to locations on your hard disk or other storage devices
Bold	Highlights important names, concepts, and software interface elements.
[Brackets]	References keys on a computer's keyboard
▶	Single item instructions are represented by a bullet icon.
→	Results in procedures are represented by an arrow icon.

The following three icons represent different types of information:



The **light bulb** icon indicates a useful tip, suggestion, or interesting fact.



The **information** icon highlights important information that is essential for the given context.



The **warning** icon alerts you of serious issues and potential risks that require your full attention.

3. Installation and Setup

Before making music with RETRO MACHINES MK2, you must install and set up the necessary software. Follow these instructions to get started:

Native Access

Native Access is where you will install the software for RETRO MACHINES MK2. If you are new to Native Instruments, you will first have to create your Native ID. To learn more about Native Access, visit our support page [here](#).

1. Download and install Native Access [here](#).
2. Create a Native ID if you do not yet have one.
3. Login to Native Access using your Native ID.
4. Click the **Not installed** tab.
5. Click **INSTALL** for the following products:

- KONTAKT or KONTAKT PLAYER
- RETRO MACHINES MK2

The software is installed automatically.

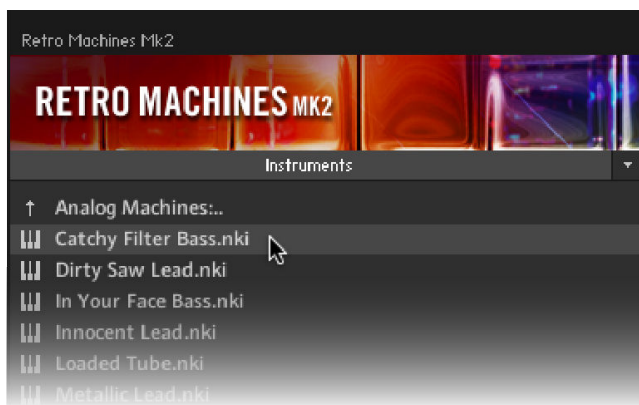


If the software is already installed, click the **Available updates** tab and check for new updates before proceeding.

RETRO MACHINES MK2 via KONTAKT

Once installed, you can start using RETRO MACHINES MK2 in KONTAKT. RETRO MACHINES MK2 is not an independent plug-in, so you first need to open an instance of KONTAKT or KONTAKT PLAYER:

1. Open KONTAKT as a plug-in in your host software (DAW) or as a stand-alone application.
2. Locate RETRO MACHINES MK2 in the Browser, on the left side of the user interface.
3. Click **Instruments** to open the product's content.
4. Double-click the **"Preset Name".nki** file to load the instrument.





If you are new to KONTAKT and want more information, visit [KONTAKT PLAYER](#) and [KONTAKT](#).

4. Overview of RETRO MACHINE MK2

The RETRO MACHINES MK2 interface is divided into three pages; Synth, Arp/Chord, and Settings accessed using the colored buttons at the top of the instrument.

The interface contains the following pages:



1. **SYNTH** page: Provides consistent control of parameters, whichever vintage instrument you're currently using. Each preset captures the character sound of the original instruments, with eight integrated sound variations. These variations are production-ready synthesizer sounds, a specific combination of Oscillator, Filter, Amp, and other settings. Your tweaks can be saved within each Sound Variation, and you can use the Morph slider to shift between variations for dynamic sound. All presets share the same user interface with only minor differences in the control elements; for example, one instrument might have a reverb and echo effect, and another reverb and a phaser effect. For more information, refer to [Synth Page](#).
2. **ARP/CHORD** page: Provides an analog-style arpeggiator. The arpeggiator can either synchronize to your host tempo or play at its own rate. Depending on your preference, it can also be combined with the Chord Player. For more information, refer to [Arpeggiator and Chord Page](#).
3. **SETTINGS** page: Allows you to configure how your MIDI keyboard's controls (or the KONTAKT on-screen keyboard's controls) affect the instrument's sound. For more information, refer to [Settings](#).

5. Synth Page

The Synth page provides consistent control of parameters, whichever vintage instrument you're currently tweaking, including the oscillators, filter, envelopes and LFOs. Each preset captures the character sound of the original instruments, with eight integrated sound variations. Each variation is a production-ready synth sound, a specific combination of OSC, Filter, Amp and other settings. Your tweaks are saved within each variation, and you can use the Morph slider to shift between variations for dynamic sound.

- To open the Synth page, click the red **SYNTH** button.

The Synth page contains the following elements and controls:



1. **OSC:** Adjusts the raw sound of the synth including EQ, detuning, and how the LFO affects pitch. It is also possible to adjust the start point of the sample to avoid the sampled filter envelope phase. For more information, refer to [Osc](#).
2. **FILTER:** Adjusts the brightness of the sound and determines how this can be changed using the LFO, envelope, or velocity. There is a range of filter types available, each providing a different sound characteristic. For more information, refer to [Filter](#).
3. **AMP:** Adjusts how the amplitude of a sound changes over time, from the moment the note is played to its release. For more information, refer to [Amp](#).
4. **LFO:** Provides controls relating to the function and behavior of the Low-Frequency Oscillator. The LFO produces periodic modulation, which can be used to modulate the Filter and Oscillator. For more information, refer to [LFO](#).
5. **ARP and CHORD Switches:** The Arp and Chord switches activate/deactivate the arpeggiator and chord player and have the same function as the corresponding switches on the [Arpeggiator and Chord Page](#). For more information, refer to [Arpeggiator and Chord Page](#).
6. **SOUND VARIATIONS:** Contains 8 buttons that each recall a variation of the current preset. Each Sound Variation is a production-ready synth sound made from a specific combination of Oscillator, Filter, Amp, and other settings. Use the Morph slider to shift between variations for dynamic sound. For more information, refer to [Sound Variation](#).
7. **EFFECTS:** Features two of three possible effects that can be applied to the sound. This includes reverb, delay, and phaser. For more information, refer to [Effects](#).
8. **PERFORM:** Adjusts how RETRO MACHINES MK2 responds to your keyboard or MIDI. These settings include Glide amount, Solo, Legato, and Glide on/off. For more information, refer to [Perform](#).

5.1. Osc

The Osc (oscillator) section provides the raw sampled waveforms with plenty of harmonic content from the original instrument. However, these waveforms may be further processed in various ways, from selecting different EQ settings to thickening the sound by spreading the signal and detuning it. In addition, it is also possible to modulate the pitch of the sampled waveform using the LFO (Low-Frequency Oscillator) and change the start point of the sampled waveform. Thus, this section presents many opportunities further to enhance the sound before the Filter section processes it.

The Osc section has the following controls:



- **SOUND:** Morphs through various 3-band EQ settings. The parametric peak equalizers within KONTAKT are programmed to produce a wide range of tonal alterations for each sample. As you step through each setting, you can hear how it alters the signal. When the parameter is at the far left position, no EQ settings are applied. Various EQ settings can be heard if you move the dial from left to right.
- **FAT:** Thickens the sound by detuning and spreading the audio signal. Turn the parameter from left to right to achieve a fuller and wider sound.
- **LFO AMOUNT:** Adjusts the amount of modulation applied from the LFO (low-frequency oscillator) to the pitch of the oscillator.
- **SAMPLE START:** Moves the sample start point forward, useful for making a sound more static by cutting the sampled filter envelope phase.

5.2. Filter

A filter is a signal processor which changes the frequency content of a signal that passes through it. Filtering is a crucial sound design feature and one of the principal means by which you can sculpt your sound. The Filter section in RETRO MACHINES MK2 has four filter types, each capable of subtracting or boosting the original harmonics of the sampled instrument. Although the original synthesizers and keyboards produce the raw signal, the filters from the original instrument give a synthesizer its distinctive sound. However, when programming new sounds with RETRO MACHINES MK2, the creative potentials of the Filter section can enhance or modify these samples to produce something new and distinctive, which is vital for the overall sonic impression.

The Filter section contains the following controls:



- **FILTER (on/off switch):** This switch is a bypass for the whole Filter section. When switched to the right, the Filter section is active; when switched to the left, the Filter section is bypassed.
- **CUTOFF:** Sets the cutoff frequency of the filter. The effect of the cutoff will depend on the filter type selected.
- **RES (resonance):** Sets the strength of the resonant peak at the cutoff frequency. High values may produce a more piercing sound.
- **TYPE:** Selects one of the four filter types:
 - **DAFT LP:** Selects the Daft low-pass filter, which has been adapted from the Native Instruments MASSIVE synthesizer and is an aggressive filter design. The filter's response is a 2-pole low-pass, which attenuates frequencies above the cutoff at a rate of -12 dB/octave. Use the Amp section's **GAIN** knob to compensate for amplitude reduction due to the filter. In addition, it controls the amplitude increase after the filter.
 - **LADDER LP:** Selects the Ladder low-pass filter. This filter type is based on the classic ladder circuit used in early synthesizers and has a 24dB/octave slope and an adjustable resonant peak at the cutoff point. This filter offers pleasing overdrive tones when attenuating the signal.
 - **NOTCH:** Selects the Notch filter. The Notch filter cuts two narrow bands of frequencies at either side of the cutoff.
 - **FORMANT:** Selects the Formant filter. The term "formant" often applies to the phonetics of human speech, and as such, mimics the frequency response of the human vocal tract. Use this filter type to emulate the classic "talk box" effect.
- **LFO AMOUNT:** Sets the amount of modulation applied from the LFO to the cutoff frequency.
- **VEL AMOUNT:** Sets the amount of modulation applied from the MIDI velocity to the cutoff frequency.
- **ENV AMOUNT:** Sets the amount of modulation applied from the filter envelope to the cutoff frequency. Turn the knob left to open the filter, and turn the knob right to close it.
- **ENV DECAY:** Sets the decay time of the filter envelope. The effect of this is only heard when the **ENV AMOUNT** is applied.

5.3. Amp

The Amp section allows you to control the amplitude (volume) of the output signal. In addition, the **PERCUSSIVE** button provides amp settings specially designed for percussive sounds. This provides a good starting point for further enhancement and fine-tuning of your own percussive sounds.

The Amp section contains the following controls:



- **ATTACK:** Adjusts the time the amplitude envelope takes to reach the peak level. Turned fully left, the envelope will start immediately. Turning the control right, the Attack becomes longer, and your sound will have a smoother start
- **RELEASE:** Defines the amount of time it will take for the amplitude envelope to fall and fade to zero. This is used to create sounds that continue long after the note has been pressed and released.
- **VEL SENS:** Sets the amount of modulation applied from the MIDI velocity to the volume.
- **GAIN:** Adjusts the volume of the selected Sound Variation. Gain is also useful for matching the volume of different Sound Variations. Furthermore, it allows you to make up for the loss of volume due to extreme filtering.
- **PERCUSSIVE:** Switches the Amp envelope mode to create shorter, percussive sounds.

5.4. Perform

The Performance section allows you to set parameters for the behavior of notes when played from a MIDI keyboard (or even your computer's keyboard). For example, in Glide mode, the instrument pitch-bends between two successive notes until the pitch of the second note is reached.

The Perform section contains the following controls:



- **GLIDE (knob):** Sets the glissando time between two notes when the GLIDE button is activated. Glissando is the time it takes a sound to glide from the first note pitch to the next note pitch (also known as "portamento"). When the knob is at full left, there is no glide, and the pitch will jump from one note to the next. When you turn the knob to the right, the glide time increases and makes the transition between the notes smoother.
- **SOLO:** Enables a monophonic mode; for instance, only one note is audible at a time. This works well with both **LEGATO** and **GLIDE**. It is useful for replicating monophonic synthesizers. When in **SOLO** mode, the Chord feature from the Arp/Chord page cannot be used.
- **LEGATO:** Enables legato mode. As long as a key is depressed in legato mode, the attack phase of the following note will not be triggered, but the current note will pitch-bend to the second note's value. This feature is only active when **SOLO** is set to on.
- **GLIDE (button):** Turns pitch slides on or off. The rate of the glide can be controlled with the **GLIDE** knob.

5.5. Effects

The Effects section holds two out of three possible send effects (Reverb, Echo, or Phaser) for each preset. Each preset has a set effects configuration; Reverb and Echo, or Reverb and Phaser.

The Effects section contains the following controls:



- **REVERB:** Sets the send level of the Reverb effect.
- **ECHO:** Sets the send level of the Echo effect.
- **PHASER:** Sets the send level of the Phaser effect.

5.6. LFO

A Low-Frequency Oscillator (LFO) can be used to modulate a variety of sources for differing end uses. Modulating pitch with an LFO creates a vibrato effect, and modulating amplitude (volume) produces tremolo. LFO modulation can also be used for special effects in specific genres of music, to create movement and dynamics in your sound.

In RETRO MACHINES MK2, the LFO section modifies the Oscillator pitch and the filter cutoff frequency. Unlike the Envelope Generator in the AMP section, which acts as a one-off modulation, the LFO modulates by using a cyclic repeating wave pattern. The waveforms present in RETRO MACHINES MK2 are Sine, Square, Saw, and Random. The rate at which they can modulate the oscillator pitch and the filter cutoff frequency is adjusted with the Rate parameter.

The LFO section contains the following controls:



- **LFO RATE:** Sets the speed of the LFO. The LFO is monophonic and can modulate pitch and filter cutoff frequency.
- **TRIANGLE:** Sets the LFO waveform to a Triangle wave.
- **SQUARE:** Sets the LFO waveform to a Square wave.
- **SAW:** Sets the LFO waveform to a Saw wave.
- **RANDOM:** Sets the LFO waveform to S/H (sample and hold) behavior, for instance, generating a random and stepped waveform.

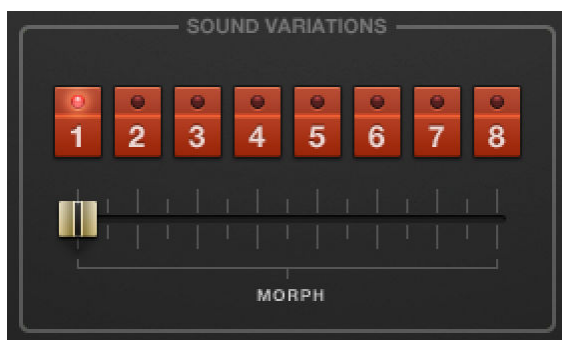


Use the Filter section's **LFO AMOUNT** parameter to set how much the LFO affects oscillator pitch and the filter cutoff frequency.

5.7. Sound Variation

Each preset captures the character sound of the original instruments but also includes eight integrated Sound Variations. Each Sound Variation is a production-ready synth sound made from a specific combination of Oscillator, Filter, Amp, and other settings. Your tweaks are saved within each variation, and you can use the Morph slider to shift between variations for dynamic sound.

The Sound Variations section contains the following controls:



- **Sound Variations (buttons 1-8):** Each button recalls a sound variation. The buttons and controls have the following behavior:
 - [Alt] clicking a Sound Variation button will copy the entire sound variation to all variations.
 - Changes to any knob or button are immediately stored in the selected sound variation slot.
 - [Alt] clicking any knob/button will copy the control's value to all Sound Variations.

- **MORPH (slider):** Morphs through Sound Variations. Only the knob settings of the variations will be affected by morphing. You can also control the slider with the arpeggiator or the pitch bend wheel (the pitch bend wheel behavior can be changed on the Settings page, refer to [Settings](#)).

5.7.1. Using and Editing Sound Variations

When using and editing Sound Variations, there are a few things to be aware of:

- Each Instrument contains a set of eight Sound Variations. All Sound Variations follow a similar convention:
 - Slot 1 is the basic sound.
 - Slots 2-4 contain slight variations of the basic sound.
 - Slot 5 contains a monophonic version of the sound.
 - Slot 6 contains a pad version of the sound.
 - Slot 7 is a variation of the sound with a chord.
 - Slot 8 is a variation of the sound with an arpeggiator.
- Switching off the filter on the Synth page will have no effect when morphing between Sound Variations, as each selected sound variation will recall a programmed filter setting, thus, overriding the Filter on/off switch.
- When morphing between Sound Variations, only parameters with dials will change. Parameters with buttons will remain unchanged and therefore their effect on the overall sound will not be heard.
- [Alt] + click any knob/button will copy the control's value to all sound variations.
- [Alt] + click a sound variation button will copy the entire sound variation to all variations.

5.8. Arp and Chord Switches

The Arp and Chord switches activate/deactivate the arpeggiator and chord player and have the same function as the corresponding switches on the Arp/Chord page. For more information on the Arpeggiator and Chord Player, refer to [Arpeggiator and Chord Page](#).

The Arp and Chord Switch section contains the following controls:

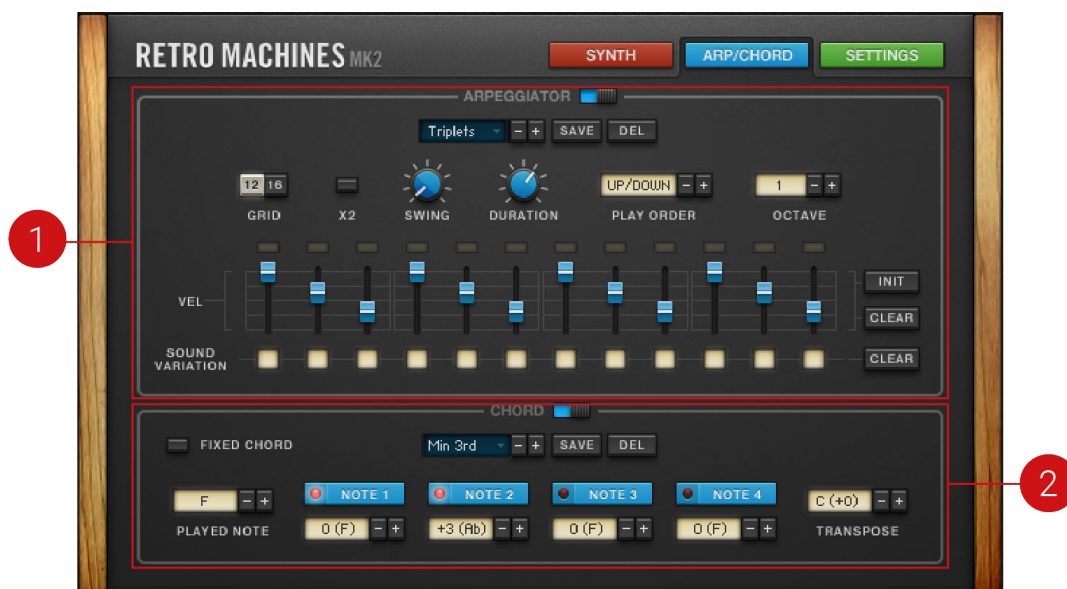


- **ARP:** Activates/deactivates the arpeggiator.
- **CHORD:** Activates/deactivates the chord player.

6. Arpeggiator and Chord Page

RETRO MACHINES MK2 contains an Arpeggiator and Chord Player for quickly creating dynamic arpeggios and sophisticated chords.

- To open the Arpeggiator and Chord page, click the blue **ARP/CHORD** button.



- ARPEGGIATOR:** Includes a 16 step arpeggiator based on vintage sequencers. Here you can adjust the arpeggiator settings to change the play order, swing, and octave range. To create more dynamic sounds, alter the velocity and set a variation for each step, so the preset constantly evolves and changes over time. For more information refer to [Arpeggiator](#).
- CHORD:** Contains the Chord Player for creating chords from single notes. Here you can use preset chords from the menu or create your own by adding the interval for each note. For more information refer to [Chord](#).

6.1. Arpeggiator

An arpeggiator automatically steps through a sequence of notes based on an input chord, thus creating an arpeggio. The arpeggiator in RETRO MACHINES MK2 is inspired by the arpeggiators found in the original machines. Choose 16 steps or 12-step triplet mode, and define the velocity of each step. You can also assign a different sound variation to each step in the pattern for dynamic, expressive arpeggios. Arpeggiator settings can also be saved as presets and recalled at any time.

If used in a DAW (digital audio workstation), the arpeggiator will be synced to the tempo and the position in the host application; for example, if the transport starts at beat 3, the arpeggiator will start from step 9.

The arpeggiator contains the following parameters and controls:

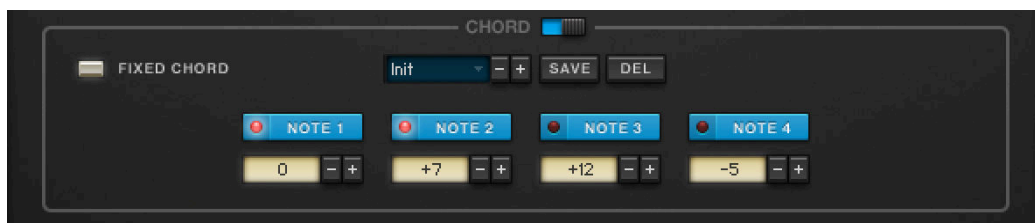


- **ARPEGGIATOR (on/off switch):** Activates/deactivates the Arpeggiator.
- **Preset menu:** Selects an arpeggiator preset (click the arrow to open the drop-down menu). You can also click on the name of a preset to type in a new preset name.
- **Next (+ icon):** Selects the next arpeggiator preset.
- **Previous (- icon):** Selects the previous arpeggiator preset.
- **SAVE:** Saves changes made to the current arpeggiator preset. If it was a factory preset, a copy is created in the user area. If it was a user preset and no name changes have been made, the preset will be overwritten.
- **DEL:** Deletes the current arpeggiator preset.
- **GRID:** Selects 12-step triplet mode or 16-step mode.
- **X2 (double-time):** Doubles the tempo from 16th to 32nd notes or 12th to 16th triplets.
- **SWING:** Offsets the second and fourth steps in 16th mode to create a swing feel. Swing only works in **GRID** 16-step mode.
- **DURATION:** Sets the duration of the arpeggiated notes. At maximum, consecutive notes will overlap (useful when **SOLO** and **LEGATO** in the Perform section are activated).
- **PLAY ORDER:** Defines the note order for the arpeggiated pattern.
- **OCTAVE:** Sets the octave displacement, for instance, the distribution of the arpeggio pattern in various octaves. The arpeggio pattern cycles from the played octave to the octave set upwards.
- **VEL:** Set the velocity of the individual steps with the velocity sliders. Cmd-click a slider to set it to zero, [Alt] click it to set it to maximum velocity.
- **INIT:** Initializes the rhythmic grid and sets all sliders to the maximum. [Alt]-click this button to randomize all active sliders (all sliders greater than zero).
- **CLEAR (upper):** Clears the rhythmic grid; for instance, sets all sliders to zero. [Alt] click this button to randomize all variations.
- **SOUND VARIATION:** Selects a Sound Variation for the corresponding step here (click on a field and drag up/down to select one of the eight variations).
- **CLEAR (lower):** Clears the Sound Variation grid. [Alt] click this button to randomize the variation steps for all active sliders (all sliders greater than zero).

6.2. Chord

RETRO MACHINES MK2 features an advanced approach to playing chords. The Chord Player creates chords from single notes, which is especially useful when combined with the Arpeggiator.

The Chord Player contains the following parameters and controls:



- **CHORD** (on/off switch): Activates/deactivates the Arpeggiator. The Chord feature cannot be used when **SOLO** is engaged on the Synth page.
- **FIXED CHORD**: If enabled, each note of the chromatic scale will be harmonized with the same chord. Otherwise, each note of the chromatic scale can trigger a different chord.
- **Preset drop-down menu**: Selects a chord preset. You can also click on the name of a preset to type in a new preset name.
- **+** (plus sign): Selects the next chord preset.
- **-** (minus sign): Selects the previous chord preset.
- **SAVE**: Click here to save any changes made to the current chord preset. If it was a factory preset, a copy will be created in the user area. If it was a user preset and no name changes have been made, the preset will be overwritten.
- **DEL**: Click here to delete the current chord preset.
- **NOTE 1–4**: Activates/deactivates the 1st to 4th chord notes.
- **NOTE 1–4 Interval**: Sets the interval for the 1st to 4th chord note intervals.
- **PLAYED NOTE**: Only visible when **FIXED CHORD** is off. This note shows the incoming MIDI note to be harmonized.
- **TRANSPOSE**: Only visible when **FIXED CHORD** is off. You can transpose the chord set with this control.

7. Settings

The Settings page lets you configure how your MIDI keyboard's controls (or the KONTAKT On-screen keyboard's controls) affect the instrument's sound.

- To open the Settings page, click the green **SETTINGS** button.

The Settings page has the following controls and parameters:



- **MOD WHEEL:** Sets the functionality for the mod wheel.
- **AFTERTOUCH:** Sets the functionality for the channel pressure (monophonic aftertouch).
- **PITCH BEND:** Sets the functionality for the pitch bend wheel. Other than pitch bend, you can use the pitch bend wheel to morph through all sound variations or just the previous and next variations. For more information, refer to [Sound Variation](#).
- **PB RANGE DOWN:** Sets the pitch bend range when the pitch bend wheel is moved down. Make sure **PITCH BEND** is selected in the PITCH BEND drop-down menu above.
- **PB RANGE UP:** Sets the pitch bend range when the pitch bend wheel is moved up. Make sure **PITCH BEND** is selected in the PITCH BEND drop-down menu above.
- **SETTINGS RECALL:** Applies settings on a global or per preset basis.
 - **GLOBAL:** Applies controller settings to all instruments with this option enabled.
 - **PRESET:** Applies controller settings specific to the current instrument.

8. Credits

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