Manual

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1 Welcome to RETRO MACHINES MK2

Thank you for purchasing RETRO MACHINES MK2. On behalf of the Native Instruments team, we hope this KONTAKT library truly inspires you.

1.1 What is 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. So if you'd rather be making music than worrying about tuning, RETRO MACHINES MK2 gives you thick, creamy, analog sound without the repairs, and with all the benefits of state-of-the-art software technology.
The RETRO MACHINES MK2 interface provides consistent control across the board, whichever vintage monster you're currently tweaking. 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 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. In addition, the arpeggiator can either synchronize to your host tempo, or play at it's own rate, depending on your preference, combined with the Chord In essence, RETRO MACHINES MK2 is pure vintage synth nostalgia combined with ease of use.

2 Using the Instrument

In this chapter, you'll find a description of the RETRO MACHINES MK2 user interface elements, and how to operate them. All presets share the same user interface with only minor differences in the control elements; e.g., where one instrument has a reverb and an echo effect in the EFFECTS section, another one has a reverb and a phaser effect. The screenshots used throughout this chapter will show an exemplary preset interface with a specific mix of controls. You will find descriptions of all possible controls in the relevant "Controls" sections below.

2.1 SYNTH Page

The SYNTH properties window is the first window you see when you load a RETRO MACHINES MK2 instrument. This window contains all synthesizer parameters and allows you to edit them.

Synth Page Controls.

2.1.1 OSC section

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. Combined, this section presents many opportunities to further enhance the sound before it is processed by the FILTER section.

The Oscillator section.

Controls

- SOUND: Morphs through various 3-band EQ settings. The parametric peak equalizers within KONTAKT have been programmed to produce a wide range of tonal alterations for each sample to give a wide variety. As you step through each setting, you will hear how signals were altered. When the dial is in the far left position, no EQ settings are applied. As you move the dial from left to right, various programmed EQ settings may be heard.
- FAT: Thickens the sound by detuning and spreading the audio signal. Turn the dial from left to right to achieve a fuller and wider sound.
- LFO AMOUNT: Sets the amount of modulation applied from the LFO to pitch.
- SAMPLE START: Moves the sample start point forward. Useful for making a sound more static by cutting the sampled filter envelope phase.

2.1.2 FILTER section

A filter is a signal processor which changes the frequency content of a signal that passes through it. It is an important 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, it is often the filters from the original instrument itself that give a synthesizer its distinctive sound; however, when programming new sounds with RETRO MASCHINES MK2, the creative potentials of the Filter section can enhance or simply modify these samples to produce something new and distinctive, which is important for the overall sonic impression.

The Filter section.

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 the cutoff has will depend on the filter selected.
- Resonance (RES): Sets the strength of the resonant peak at the cutoff frequency. When the dial is to the far left, no resonance will be added; to the far right, the maximum amount of resonance will be present. High values may produce a more piercing sound.
- TYPE: Select the filter type here.

    - 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 response of the filter 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. It controls the amplitude increase after the filter.
    - LADDER LP: Selects the Ladder low-pass filter. This is based on the classic ladder circuit used in early synthesizers.
    - 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. This is a special filter: the term "formant" often applies to the phonetics of human speech, and as such, formant filters are designed to mimic the frequency response of the human vocal tract. These filters can be used to emulate the “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. This knob is bipolar: the left side opens the filter while the right side closes it.
- ENV DECAY: Sets the decay time of the filter envelope. Only has an effect on the filter when ENV AMOUNT is not set to middle position.

2.1.3 AMP Section

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

The Amplification section.

Controls

- ATTACK: Sets the attack time of the volume envelope, i.e., the time it will take to fade to a sound's maximum level.
- RELEASE: Sets the release time of the volume envelope, i.e., the time it will take to fade out after the note has been released. This can be used to create sounds that continue long after the note has been pressed.
- VEL SENS: Sets the amount of modulation applied from the MIDI velocity to the volume.
- GAIN: Adjusts the volume of the selected Sound Variation. Also useful for matching the volume of different Sound Variations. Furthermore it allows you to make up for loss of volume due to extreme filtering.
- PERCUSSIVE: Changes the AMP envelope mode to create shorter, percussive sounds.

2.1.4 PERFORM Section

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). In Glide mode, the instrument pitch-bends between two successive notes until the pitch of the second note is reached.

The Performance section.

Control Elements

- 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 following note pitch (also known as "portamento").
  When the knob is at full left, there is no Glide at all, 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, i.e., 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 a successive 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 control knob.

2.1.5 EFFECTS Section

The Effects section holds two out of three possible send effects specific to the Instrument Preset.

The Effects section.

- 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.

2.1.6 LFO Section

A Low Frequency Oscillator (LFO) generates periodic (or in some cases random) signals, which are typically used for modulation across all kinds of synthesizers and samplers. Their name stems from the modular analogue synthesizer of the past, where they first originated. Typically, LFOs were used in synthesis to recreate the fluctuations in pitch or sound from traditional instruments, for example, the vibrato of a wind instrument. Furthermore, when an LFO modulates pitch, it creates vibrato and when modulating amplitude (volume), it creates tremolo. However, the application of using an LFO for modulation is varied since they can also be used for special effect in certain genres of music.
In RETRO MASCHINES MK2, the LFO section acts as a modulator for 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 be used to modulate the oscillator pitch and the filter cutoff frequency is adjusted with the Rate parameter.

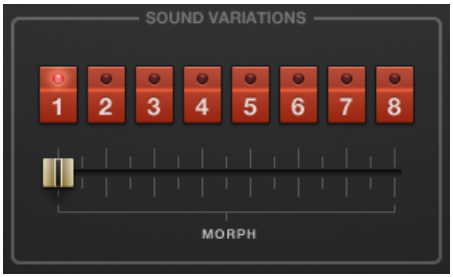
The LFO section.

- 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, i.e., generating a random and stepped waveform.

The amount that the LFO affects oscillator pitch and the filter cutoff frequency is set individually in the respective section using the LFO AMOUNT parameter.

2.1.7 SOUND VARIATIONS Section

Each preset captures the character sound of the original instruments, but also has eight integrated Sound Variations. Each Sound Variation is a production-ready synth sound, made from 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.



The Sound Variations section.

Controls

- Sound Variation buttons 1-8: Each button recalls a Sound Variation.
  - 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. This slider can be controlled with the arpeggiator or the pitch bend wheel (the pitch bend wheel behavior can be changed on the SETTINGS page).

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-clicking any knob/button will copy the control's value to all sound variations.
- Alt-clicking a sound variation button will copy the entire Sound Variation to all variations.

2.1.8 ARP and CHORD Switch

The ARP and the CHORD switch have the same function as the corresponding switches on the ARP/CHORD page. See ↑2.2, ARP/CHORD Page for further reference.

The Arpeggiator and the Chord switch.

2.2 ARP/CHORD Page

2.2.1 ARPEGGIATOR Section

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 a modern re-interpretation of the arpeggiators found in the original machines. You can choose 16 steps or 12-step triplet mode, and define the velocity of each individual step. More creatively, you can assign a different position of the Sound Variation's MORPH slider to each step in the pattern — a smart trick for dynamic, expressive arpeggios.

Arpeggiator settings can be saved 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, e.g., if transport starts at beat 3, the arpeggiator will start from step 9.

The Arpeggiator section.

Controls

- ARPEGGIATOR (on/off switch): Activates/deactivates the Arpeggiator section.
- Preset drop-down menu: Selects an arpeggiator preset (click arrow to open drop-down menu). You can also click on the name of a preset to type in a new preset name.
- + (plus sign): Selects the next arpeggiator preset.
- - (minus sign): Selects the previous arpeggiator preset.
- SAVE: Click here to save any changes made to the current arpeggiator 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 arpeggiator preset.
- GRID: Selects 12-step triplet mode or 16-step mode.
- X2 (double-time): Doubles the tempo from 16th note to 32nd notes or 12th Triplets to 16th triplets.
- SWING: Offsets the second and fourth step in 16th mode to create a swing feel. Only works in 16th 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, i.e., 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 maximum. When alt-clicking this button, all active sliders (all sliders greater than zero) will be randomized.
- CLEAR: Clears the rhythmic grid, i.e., sets all sliders to zero. When alt-clicking this button, all variation steps will be randomized.
- SOUND VARIATION: Select 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. When alt-clicking this button, the variation steps for all active sliders (all sliders greater than zero) will be randomized.

2.2.2 CHORD Section

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

The Chord section.

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: Enables/disables the 1st chord note.
- NOTE 2: Enables/disables the 2nd chord note.
- NOTE 3: Enables/disables the 3rd chord note.
- NOTE 4: Enables/disables the 4th chord note.
- NOTE 1 Interval: Sets the interval for the 1st chord note.
- NOTE 2 Interval: Sets the interval for the 2nd chord note.
- NOTE 3 Interval: Sets the interval for the 3rd chord note.
- NOTE 4 Interval: Sets the interval for the 4th chord note.
- 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.

2.3 SETTINGS Page

The Settings page allows you to configure how your MIDI keyboard's controls (or the KONTAKT On-screen keyboard's controls) affect the sound of the Instrument.

The Settings page.

Controls

- 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 variations or just the previous and next 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.
- SETTING RECALL (GLOBAL): If enabled, the controller settings will be applied to all instruments with this option enabled.
- SETTING RECALL (PRESET): If enabled, the controller settings are specific to the current instrument.

3 Credits

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