KONTAKT

RetroSound MK-100

KONTAKT SAMPLED INSTRUMENT

difficult|AUDIO

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Thank you for purchasing this instrument for NI Kontakt.

The RetroSound MK100 requires a full version Kontakt 5.6.5 or higher

Manual version: 4th December 2017

Contents

1 About the MK100

Back in 1983, mini-key consumer portable keyboards were mostly cheap sounding toys, limited in flexibility and serving not much more purpose than finding out if your kids had any musical tendencies.

However, the Yamaha Corporation, flush from the success of the recent launch of the industry-changing DX7, released a home keyboard that was a far cry from the cheap home keyboards and organs on sale at the time.

The **MK100** was a little gem of a keyboard. It's contemporaries had maybe 8 cheap-sounding presets, a preset rhythm generator with the usual assortment of bossanovas, one-finger play auto-accompaniment, were likely mono, and an assortment of gimmicks like bar code music readers and built-in cassette players didn't do much to endear them to the kids and music teachers of the time.

Standing apart from those, the stereo-chorus equipped MK100 had 12 standard presets with two layers, and you could customise the waveforms and envelopes each used (the manual proudly proclaimed "1,376 sound possibilities!"). And it actually sounded *good*!

It's not an FM keyboard (FM would arrive in portable keyboards a few years later), but it's voicings and waveforms (and colour scheme!) were clearly derived from this new range of sounds coming from the DX range. As it result, it sounded fresh, and looked contemporary compared to anything else in the shop in a similar price bracket.

Not only that, but alongside the 36 preset drum patterns you had a *programmable drum machine* - yes, for perhaps the first time in a home keyboard you could write your own drum patterns!

A big selling point was the "Multi-Menu", an innovative, and rather sci-fi device which was a low-tech pre-cursor to the sort of flexible soft-button equipped screens of today - you moved a control which rotated the entire display, revealing another set of twelve options for each of the accompanying buttons. It even had it's own separate manual. There were nine pages in all, giving the MK100 a wealth of options and customisation possibilities - alongside the synthesizer sections there were pages to change the bass and chord voicings, the custom drummer, custom bassist and the music recorder.

The in-built sequencer was crude - you could record a song of chords for the auto-accompaniment section, and separately a monophonic line over the top, alongside your custom drum and bass patterns, and you could save the entire state of the instrument to a cassette interface - common on more pro-gear a the time, but not seen on domestic portable keyboards.

You could layer a preset with another, but the layering was only monophonic on the top note, so it wasn't too useful in practice.

I spent many many hours making music with my MK100 - I learnt how to play chords, how to listen to and recreate drum patterns, and recreate the songs I heard on the radio - and I took it with me more or less everywhere.

30 Years Later

Which brings us to now. All the good bits of the MK100 have been lovingly recreated for NI's **Kontakt** sampler, which means the nice character of the original can be played via MIDI and with modern affordances like velocity sensitivity and effects.

All the main synth presets are present, and can be customised with different waveforms and envelopes in exactly the same way as the hardware, together with the chorus and tremolo effects. All the drum patterns and options are present, as is the ability to "custom drum".

In addition we have the ability to bring Kontakt's synth engine to bear on the source sounds, so each of the two synth layers can have it's own independent filter and envelope settings.

The drum voices aren't just limited to the preset sounds on the hardware, but can be pitched and distorted in a number ways - and in addition to the real-time pattern recording from the original, a full graphic step editor lets you edit your patterns, as well as full MIDI keyboard driven operation for real-time jamming and creative sessions.

And the effects page ties it all together with a reverb and delay, and some other output effects to further shape the output - or you can just leave the FX off and use your usual plugins as required.

I hope you enjoy playing with the instrument - it's development has taken the MK100 sound to some really surprising places, and has been hugely enjoyable.

Ben @ dA, 4th December 2017

2 Features

- Authentic interface
- Four main pages - Main, Synth, Rhythm, Effects
- Support for Host automation

Samples
- Sampled at 24-bit 44.1Khz, Output to 16-bit 44.1KHz NCW
- 49 chromatic samples per Wave, 17 Waves in total, 6 sampled drum sounds

Synth
- All the 12 presets & synthesis options ("1376 combinations") of the hardware
- Extended synthesis features - independent filter, filter and amp envelopes for each of the two Waves

Drums
- Integrated Rhythm/Drum machine
- All 36 preset patterns and 36 fills of the hardware
- Custom Drummer for programming user patterns
- Step drum pattern editor
- Real-time pattern recording
- Pattern recording/playback triggering, voice selection and editing from MIDI keyboard
- Individual drum sounds can be edited with pitch, envelope and FX controls
- Individual drum outputs, Host Sync and Transport support

Effects
- Effects - Reverb, Delay, Phaser
- Global Effects - Warmth, Wide, Compression, Speaker

3 Installation

3.1 Instrument

Unpack the archive and place the da_mk100 folder wherever it's convenient.
Install the snapshots (see below) to access the additional preset content.
Load the da_mk100.nki instrument into Kontakt.

3.2 Snapshots

In order to use the snapshots, you'll need to copy the contents of the "Snapshots" folder to:

PC: **C:\Users**YOU**\\My Documents\Native Instruments\User Content\Kontakt\da_mk100**

Mac: **/Users/**YOU**/Documents/Native Instruments/User Content/Kontakt/da_mk100**

On reloading Kontakt, these snapshot presets will now be available in the snapshots menu.

4 The Main Page

4.1 Overview

The main page replicates all the sound selection and variation features from the original keyboard. From here you can select any of the MK100 presets, and individually customise them by choosing different selections of waveforms and envelopes from the menu.

4.2 Presets

Presets can be selected by pressing one of the six preset switches, in combination with the row toggle switch which toggle between the upper and low rows of presets.

The RetroSound MK100's Main page.

4.3   Sustain

The sustain switches give three types of release behaviour for the presets:-

Off   -   Fast release (the sound stops quickly after releasing a note)
1   -   A fast release but with a longer pseudo-reverb tail to give a reverb-like effect
2   -   A long release

Note: *the Music Box preset will always sound in Sustain 2 mode, regardless of the sustain switch setting, just as the original does.*

4.4   Sliders

The main page has a master volume control which affects the main output of the instrument.

Note: *Shift+clicking on most slider parameters will reset the slider to it's default value.*

In addition, the Stereo Symphonic feature has **Chorus** and **Tremolo** modes.

4.5   Variations

To customise your MK100 sounds, you can enable the **Vari 1** and/or **Vari 2** menu.

Each preset can be customised individually and it's status will be remembered so you can choose your favourite settings for each of the twelve preset switches.

Vari 1 (Waves)

The first variation menu lets you customise the waves used in a preset. When you choose a preset and enable **Vari 1**, the default values used for the preset will be displayed initially.

Here you can see the Saxophone preset recalled, and it's default values are displayed.

Vari 1 showing the Waves used for the Saxophone preset.

The first group of four waveforms are for **Wave 1**, and the second group of four are for **Wave 2**, and the MK100 will always play both waves together to make up it's sound.

You can choose a different wave for each group. A second press on a selected wave will return that group back to it's default setting for the currently selected preset.

For some presets you may notice that each group may not have *any* of the four items selected. In this case, the MK100 is using a "hidden" wave, used in that preset, which is not any of the regular menu options. Rather than just the 8 Waves on display from the menu, there are actually 17 Waves used in the MK100 in total - so not every preset has the same scope for customising sounds.

Vari 2 (Envelopes)

In addition to customising the waves, you can customise the envelopes for each of the two waves - so you could have a fast attack and quick decay for **Wave 1**, with a smooth attack and high sustain for **Wave 2.**

Again, for each preset, **Vari 2** can be enabled, and you can choose one envelope for each of the two groups of four.

Vari 2 showing the Envelopes used for the Saxophone preset. No envelopes from the menu are selected, indicating that the Saxophone preset uses one of the "hidden" envelope setting for each envelope group.

Any of the menu envelopes can still be chosen as alternatives to the preset values.

Like the Waves, the MK100 internally has other hidden envelopes (17 in total) not indicated in the menu, used for different presets. A preset value with have no light selected is using one of these hidden envelopes for that envelope group.

Note: *When the Extended Synthesis page is turned on, the amplifier ADSR settings override these preset envelopes, so Vari 2 is disabled in this mode.*

5 The Extended Synthesis Page

5.1 Overview

To take the MK100 sounds further, the Extended Synthesis page can be turned on.

This applies globally for all selected synth presets.

When tuned on, each of the two waves gets an independent filter, filter and amp envelopes, velocity controls, and a detune/spread option.

Note: *When the Extended Synthesis mode is enabled, the envelopes override the main MK100 envelope settings, so the Vari 2 option, and the sustain switches will be disabled.*

The Extended Synthesis page once it's been enabled.

5.2 Source Selection

The source selection switches let you choose which wave you are controlling with the controls.

You can select **Wave 1** or **Wave 2** to change the settings for each, or you can enable **Link** mode by clicking the "-" icon between Wave 1 and Wave 2.

In **Link** mode, any controls you change will apply to both Waves equally. Any controls you don't touch will retain their independent settings.

These settings are global, so you can switch presets and/or waves on the main page for different tones and sound options without losing your extended synthesis settings.

Wave 1 selected for editing

Wave 2 selected for editing

Link mode - editing both Waves

5.3 Filter

Each Wave has it's own low pass filter.

Cutoff

At the lowest setting the filter will be fully closed, up to fully open at the top of the slider.

Resonance

The main Filter controls.

Filter Resonance can be dialled in here.

Env Amount

The env amount lets you control how much of the filter cutoff is controlled by the filter envelope.

5.4 Filter Envelope

The filter envelope is a standard ADSR-type envelope.

Note: *The Filter Env Amount slider must be raised for the filter envelope controls to have any effect on the filter.*

Attack

The attack time of the filter envelope, with an instant attack at the MIN end, and a slow attack at the MAX end of the slider.
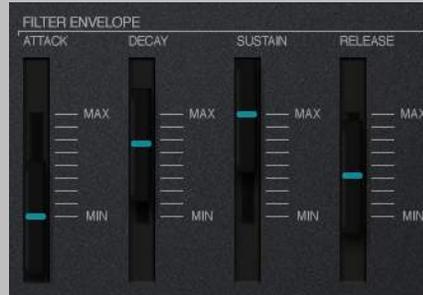
Decay

The decay time of the filter envelope, again with short times at the bottom of the slider range.

Sustain

The sustain level of the filter envelope, with no sustain at the MIN end, and a full sustain level at the MAX end of the slider.

Release

The release time of the filter envelope, with an instant release at the MIN end, and a long release time at the MAX end of the slider.

The Filter ADSR controls.

Amp Envelope

The amp envelope is a standard ADSR-type envelope, and lets you control the volume of the selected **Wave**.

The settings are the same as the Filter Envelope.

Attack

The attack time of the amp envelope.

Decay

The decay time of the amp envelope.

Sustain

The sustain level of the amp envelope.

Release

The release time of the amp envelope.

The Amp ADSR controls.
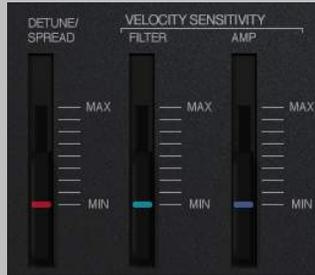
5.6 Velocity Sensitivity

The regular MK100 presets are not velocity sensitive, but enabling the **Extended Synthesis** mode lets you set independent velocity settings for the filter and amp for each **Wave**.

Filter

How much key velocity raises the filter cutoff. At MIN there is no response to incoming velocity.

Amp

How much key velocity affects the volume.

Velocity and Detune / Spread controls.

5.7 Detune / Spread

This control affects both the tuning and panning of the selected Wave.

For **Wave 1**, increasing the slider from MIN begins to tune the source downwards, and also pan to the left.
For **Wave 2**, those are reversed, raising the pitch and panning to the right.

6 Rhythm Page

6.1 Overview

Like other portable keyboards of the time, the MK100 let you choose some rhythm patterns to play along to. It featured 6 drum sounds (**Kick**, **Snare**, **Hihat Closed**, **Hihat Open**, **Conga** and **Bongo**), with 36 preset patterns (12 patterns each with three variations) and each has a unique fill pattern.

Additionally, the MK100 was very rare among the home keyboards of the time in that you could actually program your own drum patterns, with the **Custom Drummer**.

All the MK100's patterns and functionality are recreated on the Rhythm page, as well as a lot of more modern options.

The Rhythm Page.

There is no tempo control on the RetroSound MK100, as it always follows your host's tempo. If you are running in the standalone Kontakt, you can view the "Master" section to gain access to it's internal tempo control, should you wish.

Kontakt's Master Section with tempo and host transport controls

6.2 Transport Controls

Start/Stop

Starts and stops the currently selected drum pattern.

Fill In

Triggers a "drum fill" pattern from the point it's pressed to the end of the bar.

Each pattern preset has it's own fill pattern.

The Rhythm machine's transport controls.

The beat lights flash in time to indicate pattern playback.

Syncro Start

When pressed, the first beat light will flash at the current tempo, and as soon as you press a key on the keyboard, the drum pattern will start.

Additionally, when **Syncro Start** is enabled, the MK100 will follow your host's transport control, starting and stopping as your host does. Pressing "Stop" exits **Syncro Start** mode.

Presets

Each of the twelve pattern presets can be recalled using the six pattern selection switches in conjunction with the pattern row toggle switch, which chooses between the top row of presets or the bottom row.

Different presets have different time signatures - so for example, the majority, like "Disco" and "16 Beat" are in 4/4 time, "Waltz" is 3/4 time, and "Shuffle" and "Swing" are in 12/8 time.

The rhythm Preset switches and Variation slider.

Variation Slider

Each preset pattern has three versions, each with it's own fill pattern. You can toggle between the three variations using the variation slider.

6.4 Rhythm Volume

The Rhythm Volume control lets you balance the rhythm section against the synthesizer section. it controls the level of the rhythm sounds going to the main instrument output.

Note: *When the individual drum sounds are routed to individual outputs from the instrument, this control has no effect, as you are balancing/mixing the drum channel levels via your host.*

6.5 Key Play

With **Key Play** switched on, the patterns are triggered by your MIDI keyboard, from C2 to B4.

Pressing a key will start the pattern, with the pattern switches updating to indicate the selected pattern. Patterns can be switched between during playback, and a second press on the currently playing pattern key will stop the pattern.

B1 triggers the "Fill" option for the currently playing pattern.

6.6 MIDI CH 10

As turning **Key Play** on takes over the bulk of the MIDI keyboard, you can't play the synthesizer at the same time (for instance, playing the synth while playing back a recorded pattern jam from your host).

To handle this, if you turn on the **MIDI CH 10** button, all the drums and pattern play keys will get assigned to MIDI Channel 10 only, with the synthesizer section continuing to work on any other MIDI channel as normal.

6.7 Custom Drummer

Overview

The MK100 was unusual in that it let you create your own drum patterns, which was a great feature!

Turning **Custom Drummer** on gives you the ability to customise/program your own patterns. Additionally, it also lets you customise your drum voices as well.

Note: *Unlike the synth preset variation options, Custom Drummer is a global feature that applies to all patterns.*

Preserving the individual patterns' "Custom Drummer" status wasn't that useful, so here it's either On or Off for all patterns.

When **Custom Drummer** is turned on, the custom drum pattern from each preset is played instead of the factory preset pattern (these will be the same before the pattern has been edited).

The Rhythm Page with Custom Drummer turned on.

In addition, any voice customisation will be applied to change the sounds of the drum parts.

When **Custom Drummer** is turned off, all voice customisation will be turned off, and the patterns will revert to preset playback.
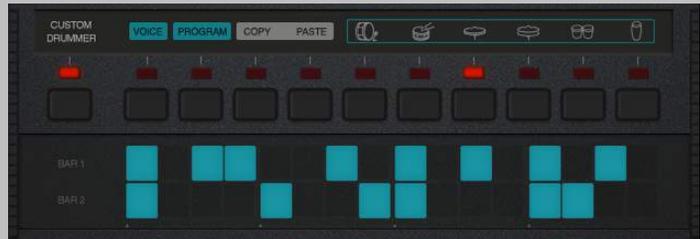
Step Editor

In Custom Drummer mode, the **Step Editor** will be displayed, showing the steps for the currently selected drum voice in the currently selected custom pattern.

You can change the voice displayed by clicking on one of the six drum voice select buttons. You can also use your MIDI keyboard (from C1) to select the drum voices.

Steps can be enabled or disabled by clicking on them.

Option (Mac) / Alt (PC) - clicking on a step copies that step's value to the whole row - giving a quick way to set or reset a whole row of steps.

The Step Editor, with the Hihat Closed voice selected, and it's steps being displayed.

Copy/Paste

You can copy one or more drum parts and paste them into another pattern. For example, you might wish to duplicate a current pattern to a new pattern, to make some slight changes.

Press **Copy**, and the Copy button and currently selected drum light will start to flash. Select any combination of drum voices - selected ones will flash - and when you have chosen the voices you wish to copy, press **Copy** again to complete the copy to a buffer. The **Paste** light will become visible.

Now you can switch to a different pattern, and **Paste** the copied parts to it.

You can also do this from a MIDI keyboard (even while jamming!)

(F0 = Copy, G0 = Paste), and selecting the voices from C1 and up as usual.

Program Mode

Program mode lets you record drum patterns in real time from your MIDI keyboard. In **Program** mode, the usual drum trigger/selection notes played will be recorded into the current pattern.

A0 on your MIDI keyboard will toggle **Program** mode, so you can trigger patterns, go into record mode, record some new parts, copy parts to a new pattern and so on, all on the fly.

Holding B0 on your MIDI keyboard in conjunction with one or more drum voices will go into real time **Erase** mode and erase selected voice steps as the pattern plays.

Keyboard Overview
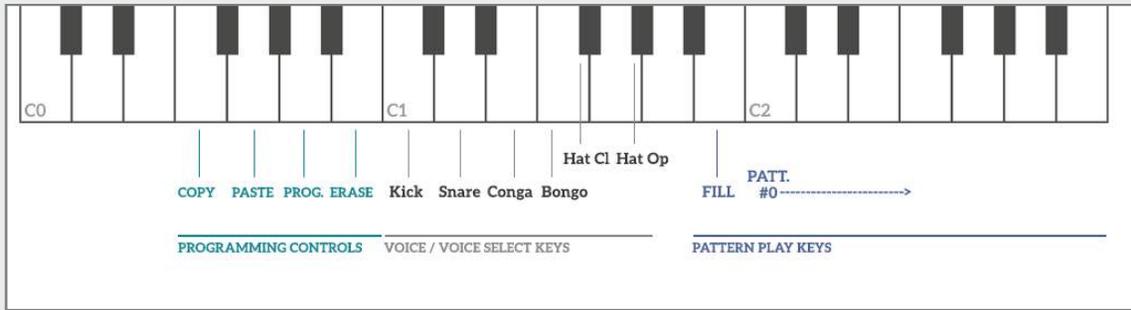
Programming Controls

(F0 = Copy, G0 = Paste)
(A0 = Program, B0 = Erase)

Voice / Voice Select Keys

(C1 = Kick, D1 = Snare, F#1 = Hihat Closed, G#1 = Hihat Open, E1 = Conga, F1 = Bongo).

Pattern Play Keys *(when "Key Play" is On, otherwise they will play the synth normally)*

(B1 = Fill
(C2 = Pattern 0… B4 = Pattern 36)

Voice Panel

Overview

Clicking the **Voice** button will open up the **Voice Panel** for the currently selected drum voice. This is where you can customise the sound of each of the drum voices independently.

You can change the displayed voice by clicking it's voice button or pressing the desired drum sound from your MIDI keyboard.

You can change the pitch and decay, the tone and colour (these vary for each drum sound), send to the global reverb and/or delay (if these FX are enabled), and control the drum voice level.

Voice changes are global and will therefore apply for all patterns.

The Custom Drummer's Voice panel.

Pitch

There is a large pitch range or several octaves for each voice.

Decay

At MAX the full sample is played, and you can shorten the decay by lowering the **Decay** slider.

Tone

Tone varies depending on which voice is selected - for some voices like the **Kick**, it morphs between EQ presets, for others, like the **Snare**, it gives a high pass filter in the upper half of the slider (removing low frequencies), and a low pass (removing high frequencies) in the lower half.

Colour

Like the **Tone** control, the effect of the **Colour** control also varies depending on the selected voice - for some you get compression effects, for others you get some grungy lofi distortion - try them out!

Reverb Send

This control raises the level sent to the globally selected reverb (see the Effects section).

Both the Effects page, and the Reverb effect, must be enabled, otherwise the reverb send slider will be unavailable.

Delay Send

This control raises the level sent to the globally selected delay (see the Effects section).

Both the Effects page, and the Delay effect, must be enabled, otherwise the delay send slider will be unavailable.

Level

Controls the volume level of the selected drum voice.

7 Effects Page

7.1 Overview

The **Effects** page adds some final polishing effects to the instrument. You have a reverb, a delay and a phaser acting on the synth section.

Note: *Individual drum voices can also be fed to the reverb and delay.*

Then there are some global output effects that act on the whole output signal.

Lastly, some global preferences for the instrument are also available from this page.

Outputs

In a regular stereo configuration, both the synth and the drum voices will go through the main stereo bus effects to your host/audio interface.

The Effects Page when turned on.

However, you can change Kontakt's output configuration to give you one stereo output, and 6 individual mono outputs, and in this mode, the synth section will remain going to the main stereo output (1-2), with each of the individual drum sounds going to the next 6 mono outputs (3-8).

This lets you route the drum sounds to individual mixer channels in your host, for additional processing/mixing with plugins of your choice.

7.2 Synth Effects

Reverb

The reverb is used by the synth section by default, can also have individual drum sounds routed through it as well. It must be turned On to use it.

Reverb Type

You can choose between three different reverb types, short to long.

Reverb Level

This sets the overall reverb return level.

The Reverb controls.

Phaser

A nice slow phaser for the synth section. For simplicity, it is either On or Off, and has no extra controls.

Delay

The delay is used by the synth section by default, but you can also send individual drum sounds through it as well. It must be turned On to use it.

Delay Time

Sets the delay time.

All the values are tempo-derived settings so will always be in sync with your tempo.

Feedback

Feedback controls how many delay repeats you hear.

The Delay controls.

Damping

Higher damping values will reduce the high frequencies of the delay tails.

Delay Level

This sets the overall delay return level.

7.3 Global Effects

The global effects are on the main stereo output bus, and both the synth and drums are routed through them.

Note: *If the drums are being sent to individual outputs to your host, then they do not pass through these effects.*

The Global output effects controls.

Warmth

A slight tape saturation effect that tames the high frequencies a bit.

Wide

This gives an exaggerated pseudo-stereo effect.

Compression

Lastly, we have an overall punchy bus compressor.

7.4   Preferences

At the top of the Effects page are some global preferences - Speaker, Effects Lock, and Retrigger. They are described below.

Speaker

This minics the internal speakers of the original keyboard, for that extra-retro sound!

Miscellaneous preferences

Effects Lock

When Effect Lock enabled, recalling new snapshots will ignore the Effects and will not update the current Effects settings.

So if you have a particular Effects configuration you like, you can lock it so it's untouched when recalling other snapshots, or even have the effects turned off to browse snapshots without any effects at all.

Retrigger

Retrigger mode is enabled by default, and is a partial nod to the hardware behaviour of retriggering any held voices when you switch presets. It also retriggers held voices when you change waves or envelopes.

Using this, you can hold a chord, and trigger different presets or waves in sync with the beat. It's not exactly wave sequencing, but it was a fun creative option when at the time options were limited!

8   Closing

Support

Support with your purchase or Kontakt Hub account should be directed to Kontakt Hub.

Support for the instrument, feedback, feature requests or help should be directed to dA.

www.difficultaudio.com
www.kontakthub.com

Updates

Updates to this instrument are distributed by Kontakt Hub, and you will be notified of any updates.

Version History

18th December 2017   -   Version 1.00 (Initial Release)

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