Nanoloop 2.2

manual

Overview

Nanoloop is a stepsequencer, which means that a loop of 16 1/16 notes is played repeatedly while these notes can be edited in various respects like volume, pitch, etc. Besides the step-wise editing, there are global synthesis parameters like wave form, filter, etc, which affect all sounds in the current channel. There are eight channels, playing simultaneously.

Color Selection on Startup

The background color can be selected on startup by either pressing START (white) or SELECT (black)

Global Shortcuts

Nanoloop has no menus, instead all modes can be reached via simple key presses, long key presses or combinations of two keys:

START: switch between stepsequencer and instrument editor or pattern

order editor

SELECT: switch between / return to mulitchannel view and single channel view

START long: file mode

SELECT long: song editor

START + SELECT: settings

A + B, L + R: context dependent

The cursor can be moved with the d-pad. To actually edit data, B and the d-pad need to be pressed together. In most contexts, A + d-pad is used for mode changes.

(UP / DOWN/ LEFT / RIGHT refer to the d-pad, L / R refer to left and right shoulder buttons)

Sequencer

The sequencer works in two different modes: A single channel view and a multichannel view. In the single channel view, all stepwise and all instrument parameters can be edited for one channel. The multichannel overview displays all channels at once and allows to edit step- & channel volume, cut / paste events and shift / shuffle patterns.

Single Channel View

On startup, nanoloop is in the single channel view mode and displays the volume settings of the first channel:
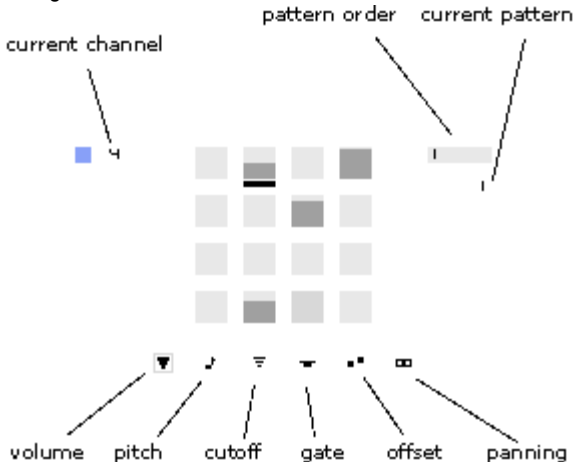
UP / DOWN /
LEFT / RIGHT: select step

B + UP / DOWN: edit parameter in step
B + LEFT / RIGHT: cut / paste step
A + UP / DOWN: change channel
A + LEFT / RIGHT: change parameter to edit

For the offset parameter there are two different modes: By default, the step is played twice, with adjustable delay. When the value is zero, A + DOWN changes the mode to a single delay, e.g. the step is played only once, with adjustable delay.

R / L: shift pattern forwards / backwards
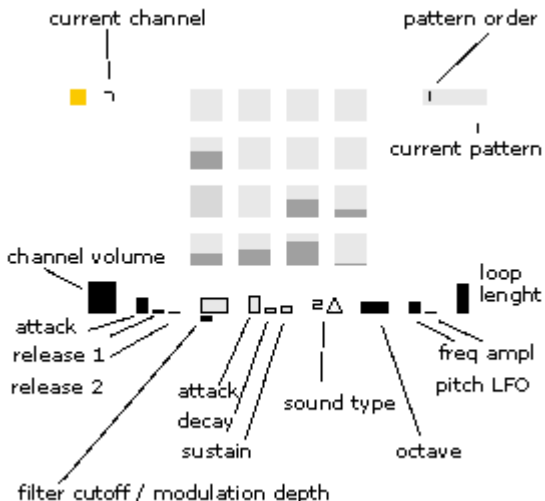L + R: shuffle pattern
SELECT: multichannel view
START: instrument editor

Instrument Editor

In the instrument editor, synthesis- and global channel parameters can be set.

Values can be changed with B + UP / DOWN

<u>Channel Volume</u>

mute / maximize with B + LEFT / RIGHT

<u>Volume Envelope</u>

Sound starts at zero volume and increases with the attack speed to the maximum. It then remains at maximum for the gate time (set stepwise in sequencer) and decreases with the speed of release 1 to 1/4 of the maximum. From here it decreases to zero at release 2 speed.

Note:

When r1 is too steep, r2 has no effect.

<u>Filter / Modulation Envelope</u>

Same as volume envelope, but instead of release 2 there is a sustain.
B + LEFT / RIGHT on sustain toggles the gate mode: When set, the gate is
applied like in volume envelope, when not, release starts immedeately after
attack. This way, sounds can change sound characteristic during gate time.
Gate mode is indicated by a little dot next to the sustain fader.

Note: The filter envelope has no effect when noise is selected as sound
type. However, similar effects can be achieved via pitch LFO.

<u>Sound Type</u>

B + LEFT / RIGHT: select synthesis type

△

Rectangular wave with high pass filter
B + UP / DOWN: pulse width (3 steps)

▽

Rectrangular wave with low pass filter
B + UP / DOWN: pulse width (3 steps)

○

FM synth
B + UP / DOWN: change carrier / modulator1 / modulator2 ratio
(1:1, 1:2, 1:1:2, 1:2:2)

10

≡

Noise

B + UP / DOWN: set filter cutoff (15 steps)

<u>Octave</u>

Very low and very high values may produce infra- or ultrasonic sound and therefore practically mute the instrument.

<u>Pitch LFO</u>

Sine wave linear frequency modulation. Frequency and depth have logarithmic scales and range from a light detune to odd FM. On depth control, B + LEFT / RIGHT sets the LFO trigger on and off. When on, the wave position is reset on every event. On frequency control, B + LEFT / RIGHT sets the start to rising / falling pitch. A falling pitch along with a short volume envelope can be used for various types of beats.

(both are indicated by little dots)

<u>Pattern Length</u>

Set the pattern length from 1 to 16 steps.

A + UP / DOWN: change channel

UP: pattern order editor

R: trigger live sound (sound settings in live mode)

L + R: live mode

START: sequencer

SELECT: multichannel view

START long: file mode

SELECT long: song editor

"Live" Mode

When pressing L + R in the instrement editor, the live mode is activated, where sounds can be triggered directly with button presses.

A: trigger sound
B: trigger & record sound
L: delete sound
LEFT / RIGHT: select parameter to edit
UP / DOWN: edit parameter for live sound

When the cursor is in the far right position (no icon), UP / DOWN changes the channel.

The recording is not quantised and it is relatively difficult to hit a certain step. Generally, the live mode is nice for effects, but it is not the best way to seriously edit a pattern. Sometimes there is no sound when A or B was hit.

SELECT returns to instrument editor.

Pattern Order Editor / Tempo

Each channel holds seven 16-step patterns, so that there is a structure of 64 steps.

```
5 6 7
    I
```

A + UP:	copy current pattern
B + UP / DOWN:	set pattern
A + DOWN:	paste pattern
B + LEFT /RIGHT:	switch multipattern mode on / off
A + LEFT / RIGHT	change tempo

DOWN:	instrument editor
START:	sequencer

SELECT:	multichannel view
START long:	file mode
SELECT long:	song editor

Multichannel View

The multichannel view shows how channels are related to each other and allows to make quick changes to sequences and channel volumes.
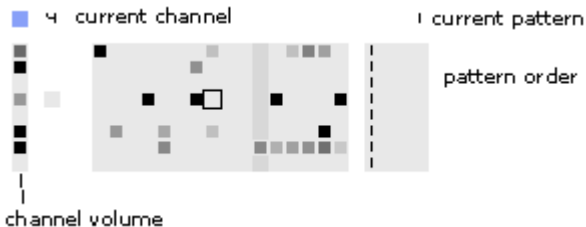
UP / DOWN:	select channel
LEFT / RIGHT:	select step
B + UP / DOWN:	edit step volume
B + LEFT / RIGHT:	cut / paste step
A + UP / DOWN:	edit channel volume
A + LEFT / RIGHT:	mute / maximize channel volume
R / L:	shift pattern forwards / backwards
L + R:	shuffle pattern

START:	pattern order editor
SELECT:	sequencer
START long:	file mode
SELECT long:	song editor
A +B:	name editor

Track / Project Name Editor

LEFT / RIGHT	set position
B + UP / DOWN	edit letter
L+R	generate random name
START:	return to channel overview
SELECT:	toggle track- / project-name

The track name is shown on the left side, the project name on the right side.

File Access

name of file in selected slot   file slots
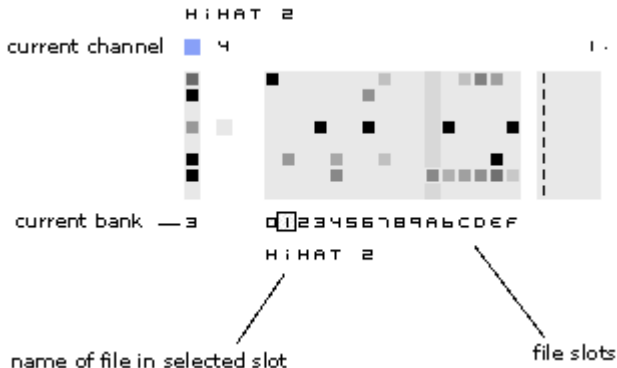
Single tracks and complete projects can be saved to fixed file slots.

START   toggle project- / track save mode

In project mode, file slots are represented by letters, in track mode by hexadecimal numbers.

<u>track mode</u>

UP / DOWN	select track
LEFT / RIGHT	select file slot
B + RIGHT	load track
B + LEFT	save track
A + UP / DOWN	select bank
A+B+LEFT long	delete file in selected slot

<u>project mode</u> (project = current 8 tracks + song structure)

LEFT / RIGHT	select file slot
B + UP	load project
B + DOWN	save current project
L + R long	harddisk recording mode
A + UP / DOWN	select bank
A+B+DOWN long	delete file in selected slot

Data are saved in flash memory on the nanoloop cartridge. Due to specific characteristics of flash memory (data have to be erased block-wise before writing), data need to be re-organized from time to time. Nanoloop performs such reorganization on each startup (indicated by a trianlge on the start screen). Depending on how many files are in memory, this can take up to 20 seconds.

The number of file operations before nanoloop has to be restarted is limited to a few hundred. The remaining number of possible project saves is shown on the right side. Even if all file slots are filled, it is still possible to save projects 380 times before a restart is necessary. So under normal circumstances, one would never reach this limit but usally turn off the game boy earlier. If you actually save more than 380 times in one run, you should take a break anyway..

File access is indicated by ▮▮. During file access, file names can't be displayed. Don't switch off the Game Boy during file access.

<u>hard disc recording</u>

UP/ DOWN: adjust volume (mute by default, sound is very noisy)

A: start transmission of file in selected slot

SELECT: return to file mode

For details on how to use the hard disc recording function and the latest version of the required PC client software, please visit www.nanoloop.com.

<u>Exchange Data via Cart swapping</u>

A simple and fast method of exchanging data is to load the desired file on the source nanoloop, remove the cart from the GBA while it is running, plug in the destination nanoloop cart and finally save the current loop or project to a file slot. While there is no cart inserted, sound may turn into hard scratch noises, so it is recommended to turn down the GBA volume switch first.

This method usally works fine, only in some few cases replugging carts can cause a reboot of the GBA.

Please be sure not to unplug the cart during file access (**II**), otherwise nanoloop may crash.

Song Editor
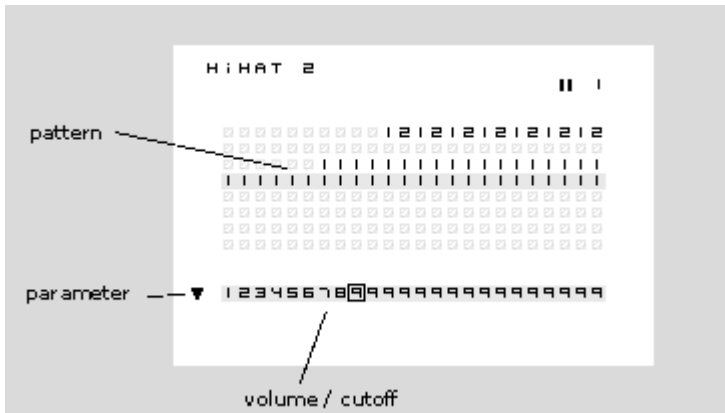
UP / DOWN / LEFT / RIGHT   select step / channel

B + UP / DOWN   edit step pattern / volume / cutoff

B + LEFT / RIGHT   copy current value to next steps

A + LEFT / RIGHT   select parameter: pattern no, volume and cutoff

A + UP	play song looped at current position (use this function for preview without playing the entire song)
START	stop / play song from current position
L / R	last / next page
SELECT	return to multichannel view

When calling the song editor the first time, pattern values are set to zero, so sound is muted. When returning to sequencer, values are restored.

Settings

UP / DOWN   select setting
B + UP / DOWN   change value

sync

Select "external" to sync nanoloop as slave to a MIDI device or an other
nanoloop. To sync two nanoloops set both to "external" first and then set
one to "internal".

color

Select a black or white background color. The color can also be selected on
startup by either pressing START (white) or SELECT (black)

<u>gain</u>

"auto" dynamically sets the current channel volumes to the maximum to get an optimal noise / signal ratio. The master volume level is permanently slowly increased until it reaches the currently possible maximum. When setting a new sound, volume can decrease suddenly which may be an unwanted effect sometimes.

"fixed" reserves 1/8 of the volume range for each channel (plus the amplification selected with "amp").

<u>amp</u>

Additional amplification ranges from 1 to f (16 in hex format). Too much amplification will result in clipping distortion.

For questions and comments, please contact
support@nanoloop.com
or visit the online discussion forum at
www.nanoloop.com