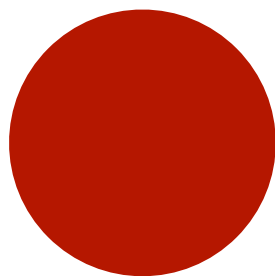弁当 ● Bentō Noise Box

User Manual

Welcome!

Bentō is a standalone noise box with tape recorder, inspired by the japanoise scene.

Thanks to its unstable and very unique oscillators, Bentō can create an enormous number of sounds and impredictable noises that are not possible with traditional subctractive synthesizers.

Bentō is not a VST plugin, but it can be connected to any DAW using a virtual audio driver such as **blackhole** (see the Youtube video tutorial)

After setting up the audio options in Bentō you can take a look at the user presets in the software to understand the vast range of sonic possibilities of Bentō.

Please read this manual that will cover all the important informations you will need to start using Bentō

1) Setting up your audio interface

At the top left of the window of Bentō you will find a button called **Audio Settings**, press it and it will open a new window:
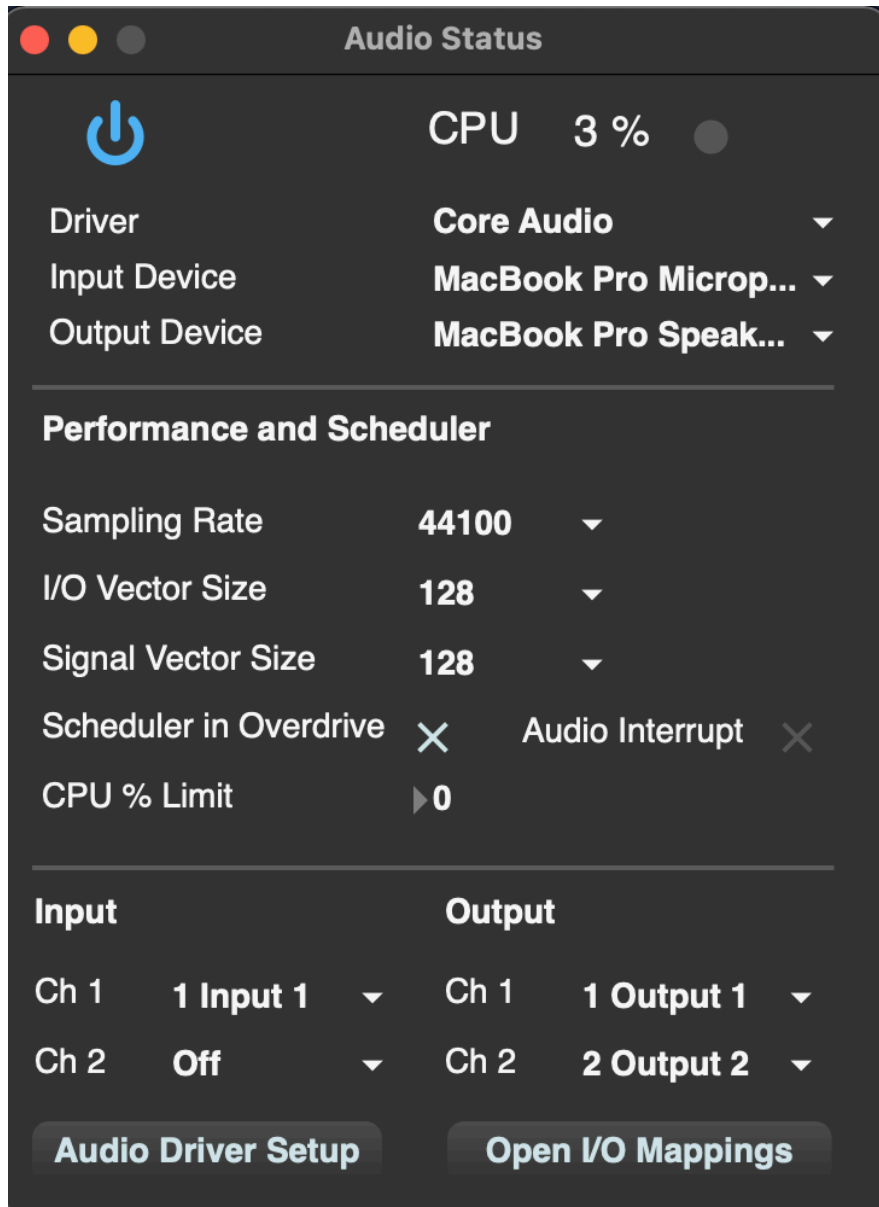
The blue I/O button at the left turns on and off the audio scheduler. If you modify some settings it's best to restart the audio processing by turning off and on again this blue button. If it is yellow it means that you need to restart the audio process.
By default this will be ON when you run the application.

Driver: select here the driver of your audio interface

Output device: select here your audio interface. If you want to use a virutal audio interface select here the driver (eg. Blackhole 2ch)

Input Device: not important, there is no audio input in Bentō

Sampling Rate: suggested 44.100

I/O and Signal Vector Sizes: these set the number of samples calculated at the I/O of your audio interface and inside the software (Signal Vector Size). It would be best to keep this number at least at 128 for both. If opening the software you hear some glitches you must try to rise both I/O and Signal vector sizes to 512 or 1024.

Scheduler in Overdrive is ON to give priority to timing messages. There are two clocks inside the software and this option gives to the clocks a priority on graphic refresh.
If you have CPU% values too high, try to uncheck this option

Output CH: you can route the output 1 2 (L R) of Bentō, to other output channels if you have an audio interface with more than 2 outputs.

2) The Bentō Top Menu

1) Audio Settings = Opens a window to set your audio interface.
2) Tape Recorder = Opens the Bentō Analog Tape Recorder.
3) Factory Presets = TRY THEM! There are many weird presets, you don't need Japanese to hear the sound, just select one preset and listen to it.
4) Save User Preset = To save a preset on your hard disk.
5) Load User Preset = To load a stored preset from your hard disk.
6) MIDI MAP = Opens the Midi mapping interface for your controller (press ESC to exit).
7) KEYBOARD MAP = Opens the computer keyboard mapping interface (press ESC to exit).
8) SAVE MAPPING = Store MIDI and KEY map on your hard disk.
9) LOAD MAPPING = Load a MIDI or KEY map from your hard disk.
10) Unlock Demo = Opens the window for the software authorisation.

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3) Software Authorization (THE DEMO RUNS FOR 10 MINUTES THEN MUST BE RESTARTED)

Press "Unlock Demo" at the right of the Bentō top menu and a window will open.
After purchasing the software on the website you will receive in your PayPal's account email the serial to unlock the software.
The process usually takes 24 to 48 hours maximum.
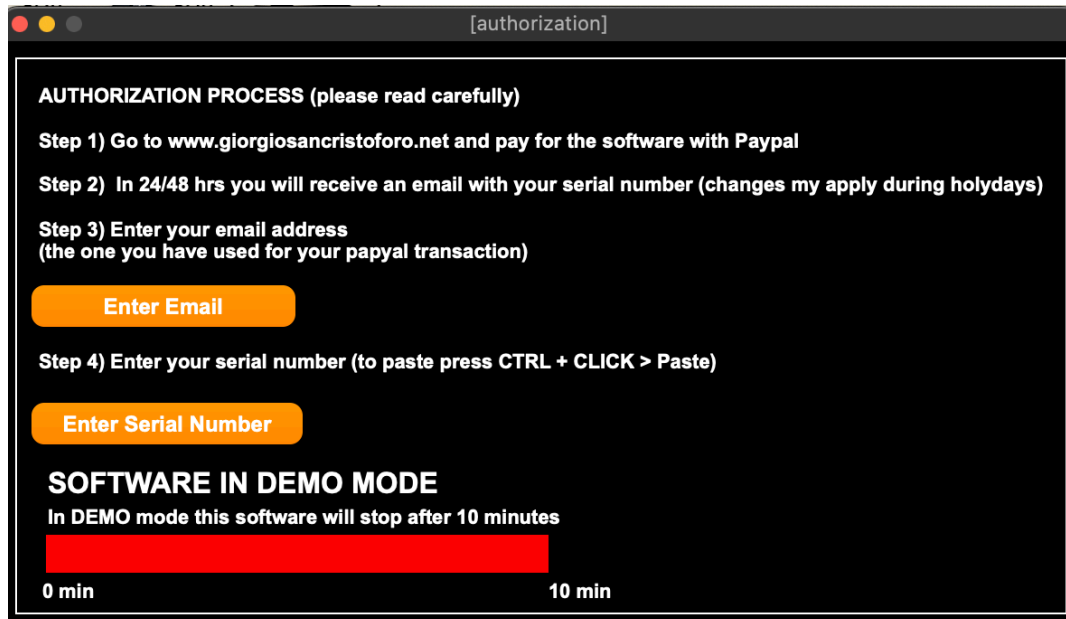
FIRST: Input your PayPal's account email address
NEXT: Input the serial code you have received, as it is with spaces.
To paste use mouse's right click > paste

When your software is authorized the red bar will become fully white and you will see SOFTWARE AUTHORIZED instead of SOFTWARE IN DEMO MODE.

Troubleshooting if this does not work, check the following:
1) the serial is correctly pasted
2) the email is your PayPal's account email
3) you have installed the software in the system HD.

4) The Bento Layout

At first sight it may look difficult and strange to work with a user interface that looks like a Japanese rail map rather than a synthesizer layout, but in reality the panel is quite straightforward and easy to use once you understand the functions of every section.

The panel is divided in two signal paths: the Red Signal Path and the Blue Signal Path.

They are almost identical (i.e. one generator, one filter, one amplifier, one clock and one envelope), except the fact that the Blue Signal Path has also a Ring modulator section.

The signal flow chart of the panel will always help you to understand where the signal can go, don't underestimate it, as a matter of facts the labels in Japanese are not a problem once you have understood this flow chart.

We will cover the Blue Signal Path only, as the Red is just a copy of it, minus the Ring Modulator control.
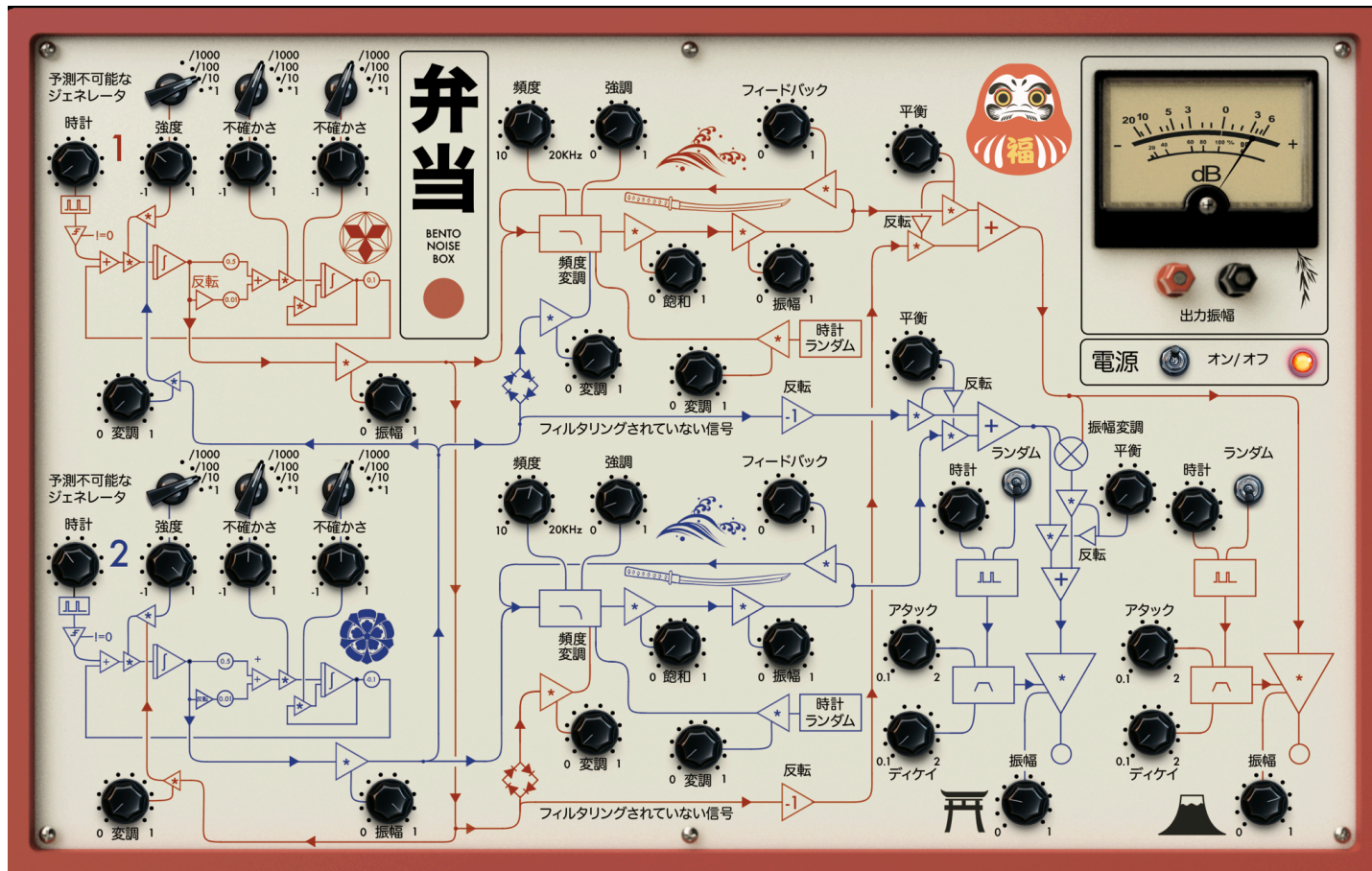
Tip: don't underestimate the power of *not knowing*. Explore, don't be shy, after all it's not important to know the functions by memory, if you use your ear.

Using preset 1 (the one that loads at startup), turn down the red signal path master volume (the dial with the Mount Fuji at the left) and use only the blue channel to start exploring Bentō.

5) The Generator

Bentō has two identical sound generators, these are not traditional oscillators, but rather these generators are models of analog computing patches that solve a differential equation. The Generators are designed to be very unstable and therefore, very alive! They can produce all kind of noises as well as some waveform between sawtooth, sine and square… sometimes…

The controls of the panel have very little to do with traditional oscillators controls. There is no frequency control, but when we create a stable oscillating sound we can control its frequency.

Next we can set a positive or negative amplitude of the impulses. This has effect too on the "frequency" of a stable oscillation.

Very little changes can radically modify the resulting sound, so this is why we have three range selectors that scale the values from 0. to 0.001 up to 0. to 1.

At the beginning there is a clock that sends impulses to the circuit, this control sets the frequency of the impulses

This control creates even more instability controlling the amplitude (negative or positive) of a feedback signal in the second integrator. As a rule of thumb: a positive value will create a lot of instability and noises. Negative values will give you the chance to create more stable oscillations. Always keep in mind that the range selectors have a deep impact of the result

This control creates instability in the sound It has positive or negative values. Basically it's the amplitude of the integrated signal coming from the clock and the feedback circuit
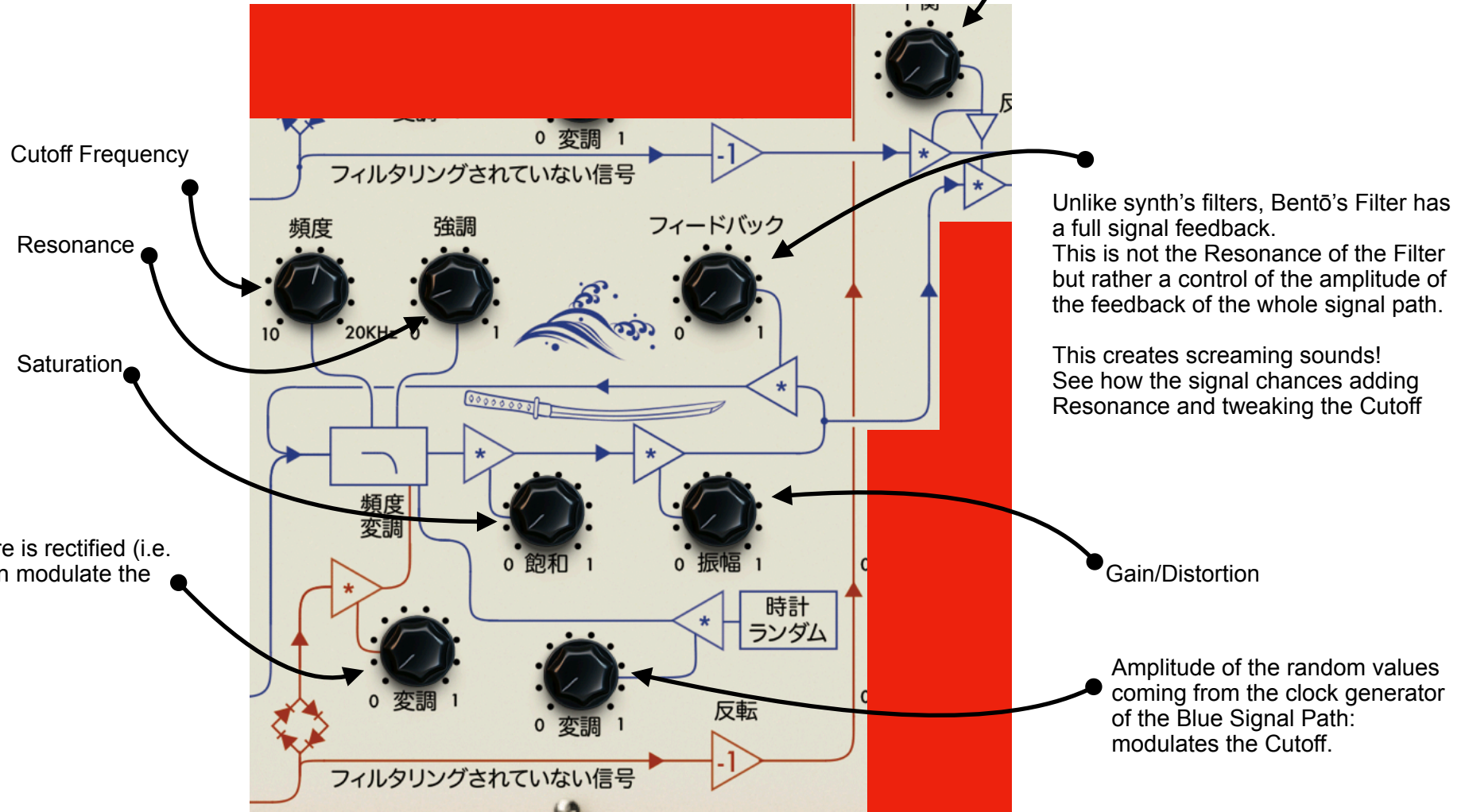
This is just the Generator's amplifier control. The output volume, so to speak.

The Red Generator can modulate the clock amplifier. Cross modulation is therefore possible for more unstable noises.

6) The Filter Section

Bentō has a 24 dB Lowpass Filter with some peculiar functions and controls:

Filter Balance:
Fully counterclockwise: Filter is used
Fully clockwise: Filter is not used.
Anything in between: a mix of filtered and not filtered blue signal

Cutoff Frequency

Resonance

Saturation

The Red Generator here is rectified (i.e. is only positive) and can modulate the Cutoff

Unlike synth's filters, Bentō's Filter has a full signal feedback.
This is not the Resonance of the Filter but rather a control of the amplitude of the feedback of the whole signal path.

This creates screaming sounds!
See how the signal chances adding Resonance and tweaking the Cutoff

Gain/Distortion

Amplitude of the random values coming from the clock generator of the Blue Signal Path: modulates the Cutoff.

変調

0 変調 1

フィルタリングされていない信号

-1

頻度

強調

フィードバック

10   20KHz 0   1   0   1

*

頻度
変調

*

*

0 飽和 1   0 振幅 1

*

*

時計
ランダム

0 変調 1   0 変調 1   反転

フィルタリングされていない信号   -1

反

7) Amplifier, EG, Clock and Random Clock

Filter Balance:
Fully counterclockwise: Filter is used
Fully clockwise: Filter is not used.
Anything in between: a mix of filtered and not filtered blue signal

Clock:
Down: normal clock
Up: random clock

平衡

反転

電源

振幅変調

ランダム

平衡

Clock to trigger the Envelope Generator
Turning the dial clockwise will turn on the Clock.
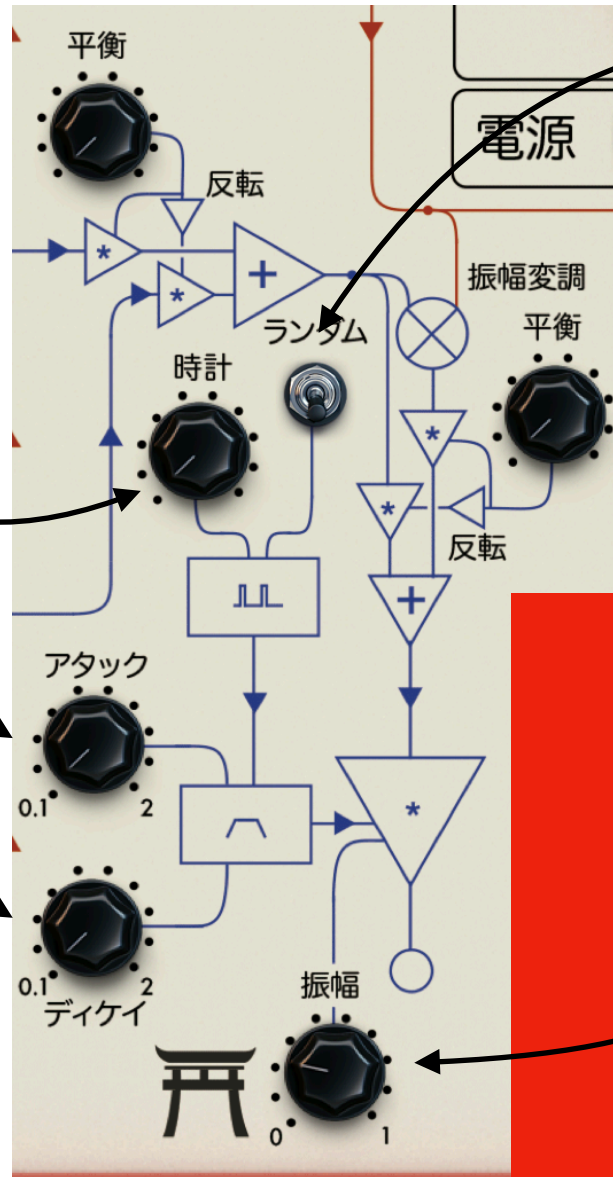
時計

Ring modulator balance:
Fully counterclockwise: blue channel only
Fully clockwise: blue * red ring modulation

反転

Attack

アタック

Envelope Generator

0.1   2

Release

0.1   2
ディケイ

振幅

Blue Channel Output Volume

0   1

8) The Tape Recorder

Bentō has an internal tape recorder with different tape and saturation controls
BEFORE RECORDING you can select the tape style, set the specific background noise, input level and saturation.

Tape length: first off select the duration of the tape. Each time you change this parameter the tape is erased

Erase the tape

Export the tape as Aiff 24 bit uncompressed file

Select the position of the tape to record or to play
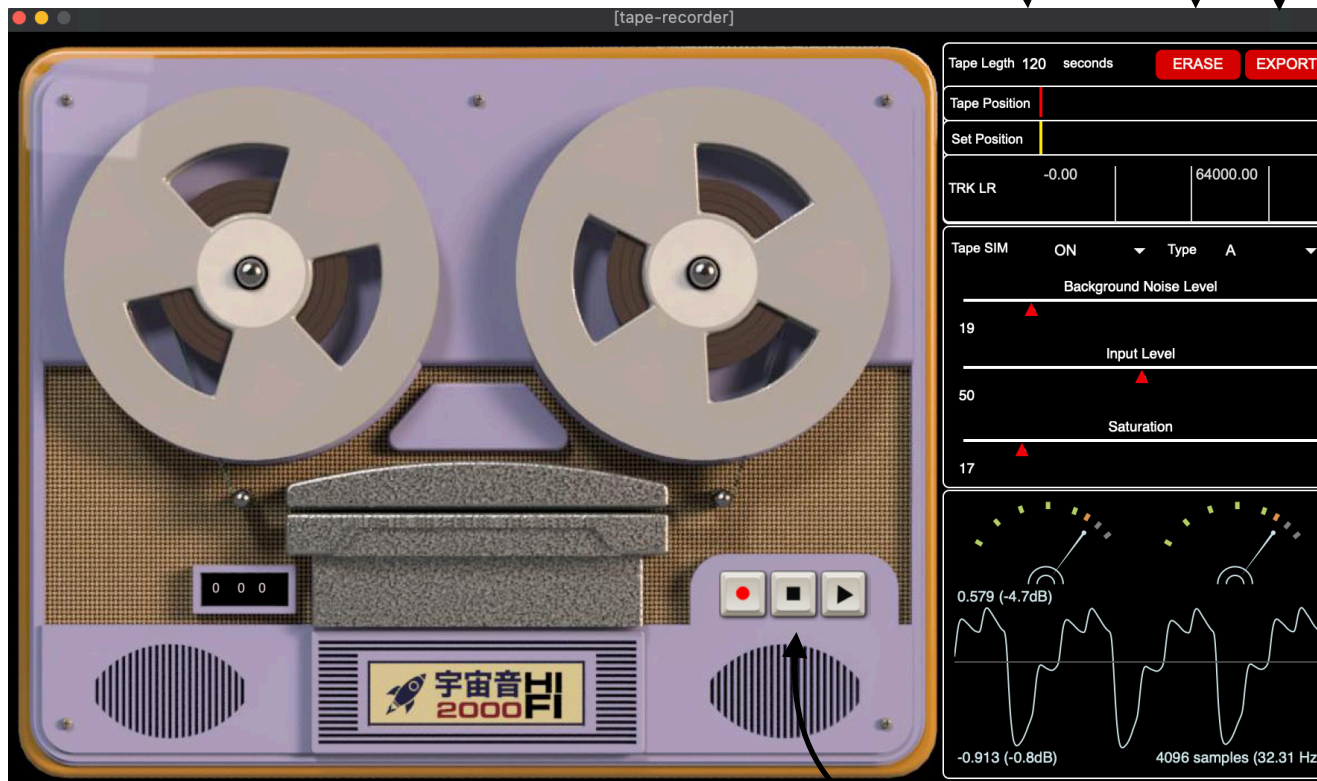
Turn ON tape simulation and choose tape preset

Background noise level

Tape input level

Tape saturation level

Recorder controls

9) MIDI and KEYBOARD mapping

You can assign MIDI CC to the dials and controls of Bento or assign your computer keyboard to buttons.
Bento do not accept MIDI NOTE ON/OFF messages.
It can't be controlled with a standard midi keyboard, it would not make sense as we don't have a typical frequency control.

On the upper window's menu press MIDI MAP, now click on one dial and move a dial on your controller, it will be automatically mapped.
To exit from MIDI or KEYBOARD MAPPING press ESC on your keyboard.

Remember to SAVE the mapping before quitting the program. The MIDI MAP is not saved in the user presets.

KEYBOARD MAP works in a similar way but with computer keyboard instead of MIDI CCs. You can use this mapping for tape recorder and buttons such as the clock modes.
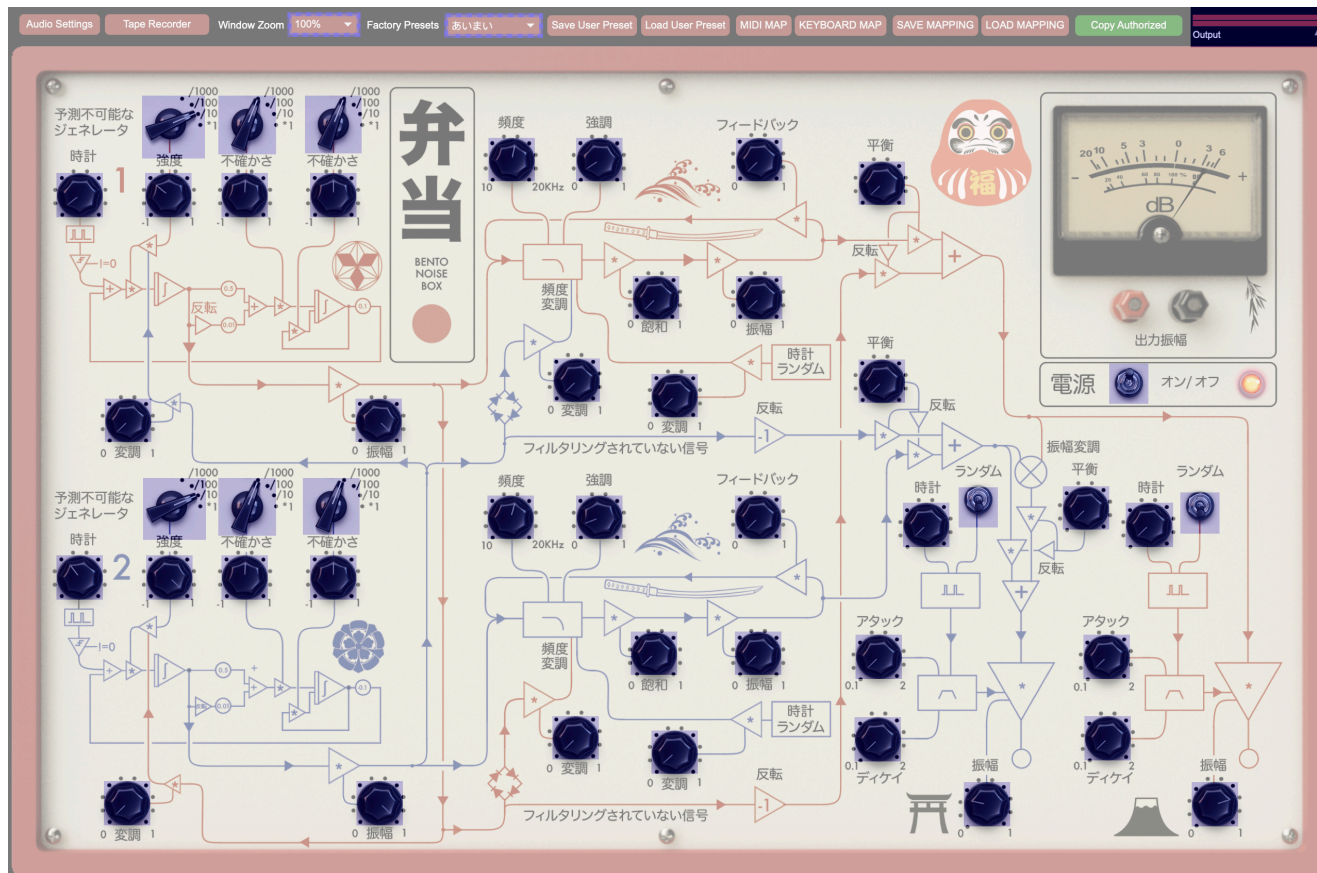
10) Saving or Loading a user preset

Simply press Save User Preset and your patch will be stored into a json file
To load a User Preset, simply press Load User Preset and load the json file you have saved.
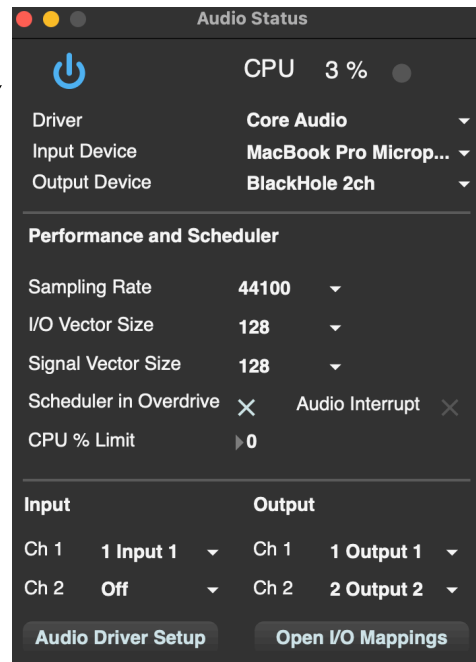
11) Communicating with your DAW

As all my softwares they're designed to be standalone and offer you an alternative playground to your music.
However it is easy to use Bento as a plugin with these simple steps.
You will need a virtual audio interface for the task. For MacOS you can download Blackhole 2ch or 64ch. Windows has Virtual Audio Cable

For this example I will show you how to record Bentō inside LogicX.

2) Restart the Audio Engine (must be blue)

1) select Blackhole 2ch as the audio output in Bentō Audio Preferences

Audio Status

CPU   3 %

Driver	Core Audio
Input Device	MacBook Pro Microp...
Output Device	BlackHole 2ch

Performance and Scheduler

Sampling Rate   44100
I/O Vector Size   128
Signal Vector Size   128
Scheduler in Overdrive   ✕   Audio Interrupt   ✕
CPU % Limit   ▶0

Input   **Output**

Ch 1   1 Input 1   Ch 1   1 Output 1
Ch 2   Off   Ch 2   2 Output 2

Audio Driver Setup   **Open I/O Mappings**

3) Open LogicX, create a new audio track and set **Blackhole 2ch as audio input** in the program's preferences
THAT'S IT!

The operation in Ableton Live is identical.