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ENDLESS PROCESSOR

MANUAL

INTRODUCTION

ENDLESS PROCESSOR is a dual-channel *infinite sound* sustainer machine.

Put your favorite instruments, unique timbres, or field recordings - virtually any sound - and make it last forever.

It is not a looper in the usual sense - Endless Processor resynthesizes your sounds to create a perfect *clickless stream* while preserving the timbral and tonal character of the original.

Endless Processor always listens to audio input and keeps a most recent history. Experiment with sustaining little bits of a sample or make a massive wall of sound with the ability to select how much memorized audio to process.

Stack your sounds to create harmonies, textures, or drones with *5 layers per channel*. Each layer can be re-processed or cleared while keeping other ones in place. Set fade-in and fade-out time to quickly or gradually introduce a new layer or remove the existing one.

Additional controls will help you to adjust or shape a channel volume (think built-in VCA).

HARDWARE AND FIRMWARE ENGINEER: ANDRII SOKOLOVSKYI
VISUAL DESIGNER: YULIIA SHVYRIOVA

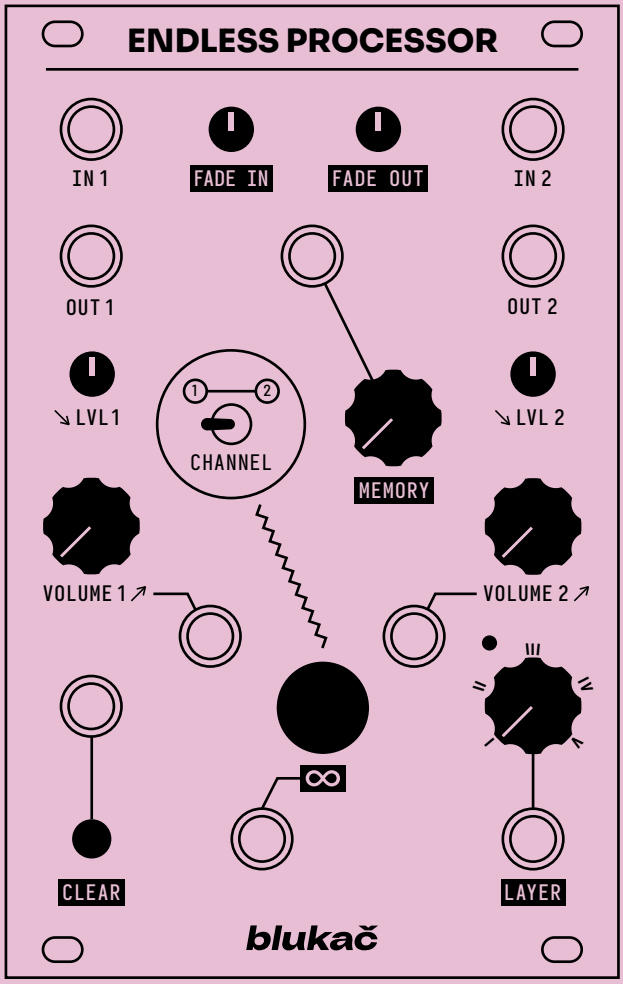
SPECIFICATION

Size 16HP

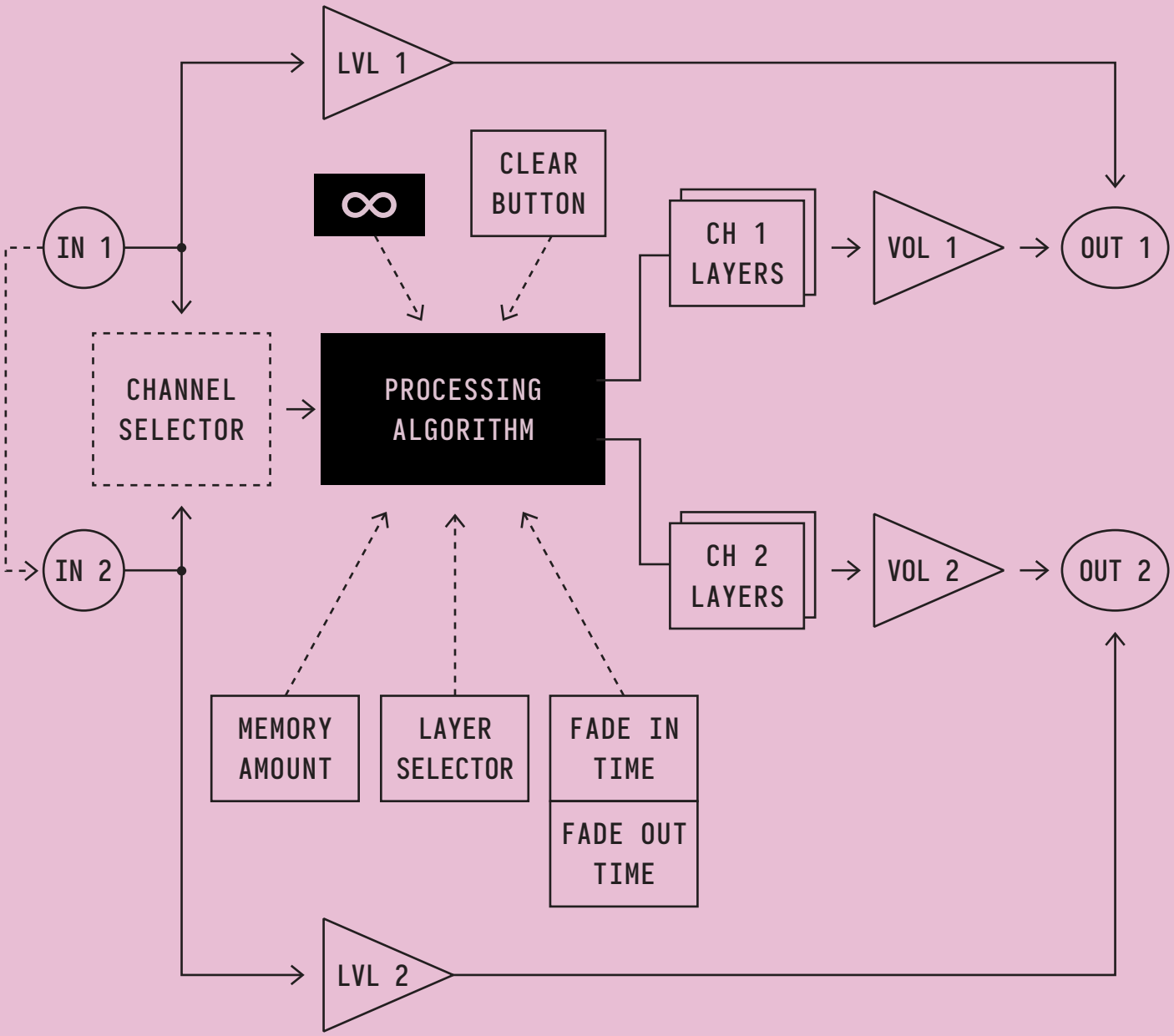
Depth 25mm

Power consumption ..... +12V 125 mA / -12V 10 mA

Audio quality 48kHz/24bit

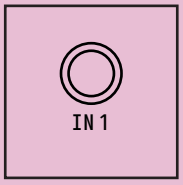


SIGNAL FLOW



Starting from the hardware revision 1.3 (see the back of the module) `IN 1` *is normalized to* `IN 2` *- if a cable is not plugged into* `IN 2`*, signal from the* `IN 1` *will be used instead.*

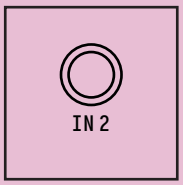
PANEL CONTROLS / INPUTS & OUTPUTS



IN 1

Audio input of Channel 1. If patched, audio is always propagated to the processing algorithm. It can be monitored in case you need to hear the input or mix it with processed layers (see LVL 1).

Expected input level: -5V/+5V (tolerates the negative and positive rail voltages of your power supply, usually +- 12V).



IN 2

Audio input of Channel 2. If patched, audio is always propagated to the processing algorithm. It can be monitored in case you need to hear the input or mix it with processed layers (see LVL 2)

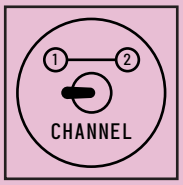
Expected input level: -5V/+5V (tolerates the negative and positive rail voltages of your power supply, usually +- 12V).

LVL 1

This knob allows you to monitor the IN 1 signal. Turning it starting from a fully counterclockwise position, you will hear audio coming from OUT 1.

LVL 2

This knob allows you to monitor the IN 2 signal. Turning it starting from a fully counterclockwise position, you will hear audio coming from OUT 2.



CHANNEL

Channel selector switch. Since Endless Processor is a dual-channel module, some controls are shared between channels and are not duplicated.

When it is in the left position, Channel 1 is selected.
The right position selects channel 2 correspondingly.

Controls that are shared between channels:
INFINITY, CLEAR, MEMORY, LAYER, FADE IN, FADE OUT.
Interaction with them will only affect the currently selected channel.

TIP: To be easier to memorize and navigate, titles of shared controls are highlighted on the panel.

MEMORY

This control determines how much recorded audio will be processed and sustained. You can select only a tiny portion of the input signal or a big chunk. This affects the result drastically and is a big field for experimentation.

For example, a small amount is useful to sustain the character of your instrument, like holding a single note or a chord, while a larger amount could freeze the sequence or chord progression.

Memory range is from 100 ms up to 3 seconds.

Expected CV input levels: -5V/+5V

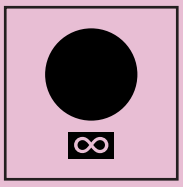
LAYER

This control is a layer selector. There are 5 layers for each channel.

Sustaining a new sound will put it in its buffer, so re-calculation or clearing will affect only the selected layer. If you want to add more layers or change the existing one, you need to select it first. As a result, all calculated levels are mixed together.

While turning the knob the led will blink indicating the layer has been changed.

Expected CV input level: -5V/+5V

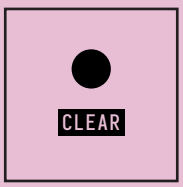


INFINITY

This button is dedicated to engaging the sustaining process.

When some layer is selected and is empty, the sustained sound will be put into the layer's buffer and then fade in. If the layer is non-empty, the old one will fade out first, and then the new one will fade in (also see FADE IN and FADE OUT).

Expected CV trigger input level: 0 - 5V (upper voltage limit is a positive rail voltage, typically +12V)



CLEAR

This button is dedicated to clearing the currently selected layer.

When the layer is not empty, after pressing the button its audio will fade out (also see FADE OUT) and the led will blink.

If you press and hold this button for 3 seconds, all other layers of the currently selected channel will also be cleared and will fade out at once.

Expected CV trigger input level: 0 - 5V (upper voltage limit is a positive rail voltage, typically +12V)

FADE IN

This knob will set the time it takes for newly sustained sound to fade in.

The time range is from 10 ms up to 5 seconds.

FADE OUT

This knob will set the time it takes for old sustained sound to fade out (after the new layer is calculated or the existing layer is cleared).

The time range is from 10 ms up to 5 seconds.

VOLUME 1

This controls the volume of the mix of all layers of Channel 1 - basically a built-in VCA.

Turning a knob without a CV source will open VCA, with maximum volume in the clockwise position.

When the CV source is patched, the value of the knob is added to the CV value.

You can turn the knob fully counter-clockwise to modulate the volume only by CV.

Expected CV input level: -5V/+5V

VOLUME 2

This controls the volume of the mix of all layers of Channel 2 - basically a built-in VCA.

Turning a knob without a CV source will open VCA, with maximum volume in the clockwise position.

When the CV source is patched, the value of the knob is added to the CV value.

You can turn the knob fully counter-clockwise to modulate the volume only by CV.

Expected CV input level: -5V/+5V

OUT 1

This is the main audio output of Channel 1.
The signal of the built-in VCA set by the VOLUME 1 is mixed with the input monitor signal set by LVL 1.

Output level: -5V/+5V

OUT 2

This is the main audio output of Channel 2.
The signal of the built-in VCA set by the VOLUME 2 is mixed with the input monitor signal set by LVL 2.

Output level: -5V/+5V

FIRMWARE UPDATE

THINGS REQUIRED FOR THE FIRMWARE UPDATE:

1. Endless Processor connected to standard Eurorack power.

2. Micro-USB cable.

3. Computer with the Chrome browser *(others may also be supported)*.

STEPS:

1. Download the .zip file with the latest firmware at **https://blukac.com/**.

2. Extract the file with the .bin extension.

3. Power module with the Eurorack power.

4. Connect the micro-USB cable to the orange DSP board (Daisy) on the back of the module.

5. Open the **https://electro-smith.github.io/Programmer/** page with your browser.

6. Press and hold the *"Boot"* button on the DSP board, and while holding press the *"Reset"* button, then release the *"Boot"* button.

7. Press the *"Connect"* button and select *"DFU in FS Mode"* from the list in the popup.

8. Find the *"Or select a file from your computer"* section, and press *"Choose file"*.

9. Find the extracted .bin file from the (2) and select it.

10. After the file is selected, press the *"Program"* button in the *"Programming section"* and wait until the flashing process is finished.

11. Disconnect the micro-USB cable from the DSP board.

12. Endless Processor is now updated and ready to use.

THE END.