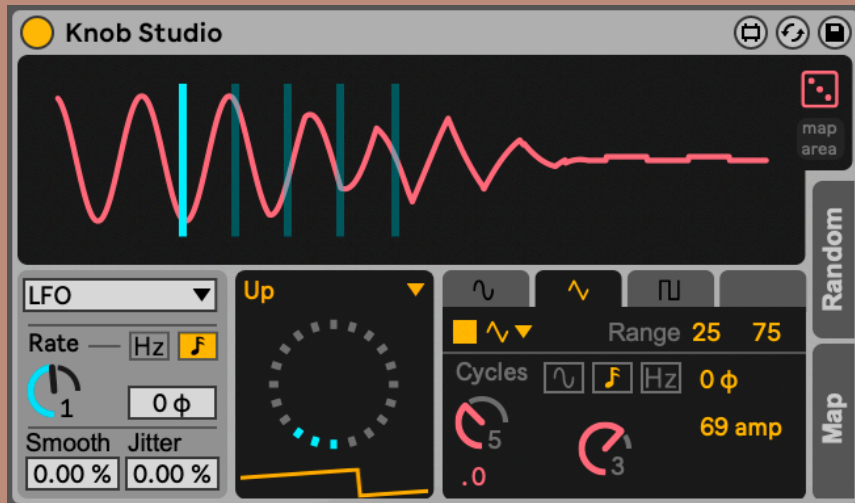


# Knob Studio - Manual

Welcome to the Knob Studio User Manual!  
Great to have you here. This guide will help you get up and running with Knob Studio in Live.  
You'll find straightforward instructions on its features and how to make them work for you.  
Let's get started!



## What is Knob Studio?

Knob Studio is a Max for Live device for Ableton that expand mapping experimentation by blending functions and evolving waveforms. Designed for detailed fine-tuning as well as the opposite approach of randomization, it opens up pathways to discovering new forms of expression. Users have complete control over waveform creation and interpretation, offering numerous ways to utilize the device for both precise adjustments and spontaneous sound explorations.

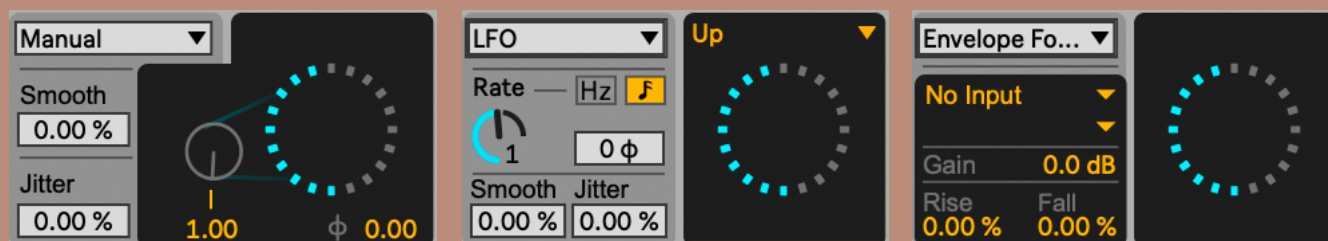


## Waveform Section

This section displays the waveform that the reading heads interpret to create mappings. It serves as a visual representation of the sound modulation process, directly influencing the device's output based on the waveform's shape and movement.

## Reading Heads Props Section

Here, you configure the properties of the reading heads. This configuration affects how the waveform is read, which in turn influences the mappings' behavior. Adjustments made in this section allow for detailed control over the sound modulation by altering how the reading heads interact with the waveform.



### MANUAL MODE

Allows manual positioning of the reading head or mapping its position to an external control. Provides user-defined control over the reading head's placement.

### LFO MODE

Enables automatic movement of the reading head through an internal LFO. Offers selection of waveform shapes and adjustment of jitter and smoothness for varied sound modulation.

### ENVELOPE FOLLOWER MODE

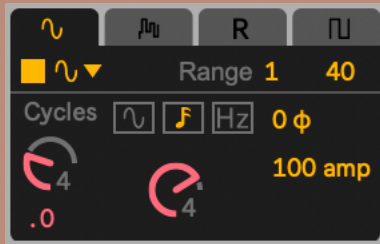
Uses live channel audio as input to control reading head movement. Facilitates dynamic modulation based on audio signal characteristics.

## Functions Props Section

In the Functions Props section, users construct their own waveform by adjusting various parameters and functions. This crafted waveform is what the reading heads will interpret. This section provides the tools to create complex or simple waveforms, directly impacting the sound's characteristics and the device's overall performance.

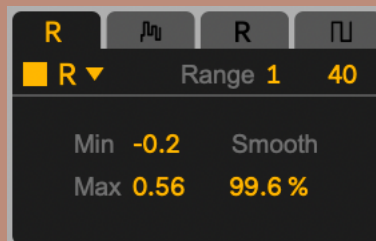
In the Functions Props Section, users have access to distinct sections for selecting and configuring functions. Each function allows for the setting of start and end ranges, with functions blending together in areas of overlap. Here's a breakdown of the available waveform functions:

## WAVEFORM FUNCTION



- Enables selection of a simple waveform type.
- Users can set the number of waveform cycles, speed, and modulation type (tempo-synced or free).
- The starting point is adjustable via phase, and amplitude can also be set.
- For random waveforms, a re-seed button can be clicked to have new randomization values. This ensure values are consistent at specific points in a track.

## R FUNCTION



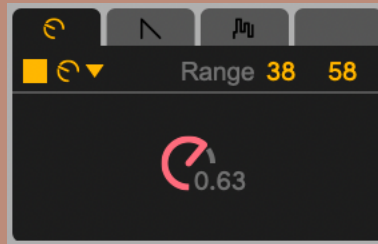
- A special function that randomizes the section's value each time the reading head enters the designated area.
- Allows for the setting of minimum and maximum values, and a smoothness parameter for transition.

## RAMP FUNCTION



- Creates a ramp by selecting start and end values, plus an additional value to adjust the curve's shape.

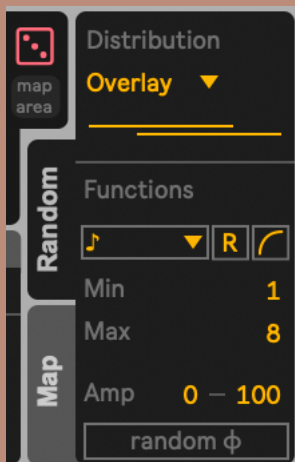
## KNOB (OR EXTERNAL) FUNCTION



- Offers the choice of a fixed value or mapping the parameter to an external control for dynamic interaction.

These functional parameters provide users with a wide range of possibilities for waveform manipulation, enabling both precise control and creative experimentation within Knob Studio.

## Randomization in Knob Studio



Knob Studio features a comprehensive randomization capability that allows users to explore new sounds and be surprised by the outcomes. To randomize functions, there's a dice symbol to click on. If you're feeling adventurous, you can even map the randomization button to a control surface, adding an unpredictable element to your performance or production process (yes, you're daring if you do this!).

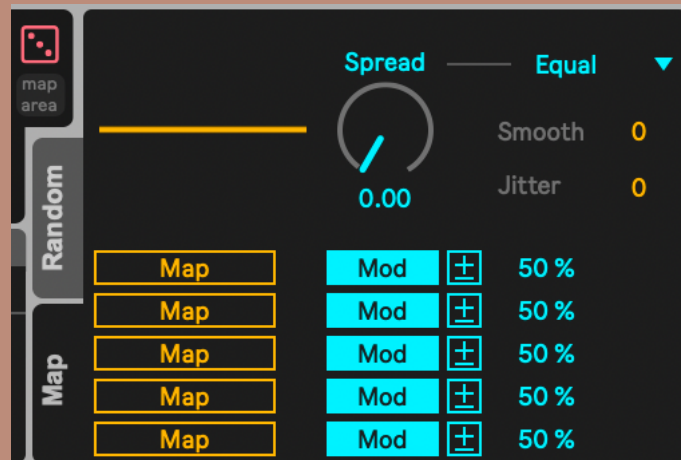
Upon pressing the random button, 2, 3, or 4 functions are activated at random. This introduces an element of chance to your sound design, potentially leading to unique and unexpected results.

Within the random tab, you can select different parameters for how the randomization is applied:

- **Spaced:** Functions are placed equidistantly from each other without overlap, ensuring that each function has its distinct space.
- **Overlay:** Functions are equidistant but with intentional overlap, creating complex interactions between the waveforms.
- **Free:** Functions are distributed randomly across the space with overlaps, offering the most unpredictable and varied outcomes.

In the functions section at the bottom, you're provided with options to select which functions are eligible for activation during randomization. You can also set the minimum and maximum for modulation speed of the waveforms, the amplitude range for waveforms, and even opt to randomize the phase of the waveforms.

# Mapping Area



In the mapping area of Knob Studio, you have the capability to utilize the device for mapping mappable parameters within Ableton Live. This section is where the rubber meets the road, enabling you to apply Knob Studio's vast array of functions directly to your project's sounds and effects.

## VISUALIZATION OF OUTPUT WAVEFORMS

This allows you to see the actual waveforms being generated by Knob Studio in real-time, providing a visual feedback of the modulation effects on your mappings.

## READING HEAD SPREAD

Adjust the distance between the reading heads using the spread function.

## READING HEAD DISTRIBUTION

Choose between equidistant and random distribution for the reading heads. Note that with random distribution, the positions of the reading heads will differ each time the Live project is reopened.

## GLOBAL SMOOTH AND JITTER SETTINGS

These settings apply a global effect to how the waveforms modulate the mapped parameters. The smooth function can help in creating a more fluid transition between waveform states, while the jitter option (unique to each output) introduces variability and a sense of organic fluctuation to the modulation.

Through these tools, Knob Studio offers a versatile and intuitive approach to mapping within Ableton Live, empowering you to sculpt your sound with precision and creativity.

Thank you for purchasing Knob Studio. If you have any questions about how knob studio works or how it is made, or if you have new ideas on how to improve the device, feel free to write to me at

[ay@alexandromiracapillo.com](mailto:ay@alexandromiracapillo.com)

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