

Kastle 2/Citadel 1.7 FW Update

Changes:

- *added Humanize/Swing (MODE/BANK + LFO); co-developed with Tomasz Szymanek, Bastl Discord community member*
- *added assignable LFO MOD destination (in advanced settings)*
- *added MIDI velocity and sustain support for Alchemist*
- *small fixes*

Important:

When updating from an older version to 1.7, Humanize/Swing will initialize to the fully left position, and you may need to hold MODE/BANK and manually turn the LFO knob to the center to disable swing.

HOW TO UPDATE KASTLE 2

- 1) Connect the Kastle 2 with a USB-C cable to your computer*
- 2) Turn OFF the power switch (left)*
- 3) Hold SHIFT and turn ON the power switch (right)*
- 4) Kastle 2 will boot into Update Mode (no sound)*
- 5) Copy the FW .uf2 file to the RPI-RP2 disk showing on your computer.*

HOW TO UPDATE CITADEL

- 1) Disconnect the Citadel module from your Eurorack power!*
- 2) Connect the Citadel with a USB-C cable to your computer while holding the SHIFT button.*
- 3) Citadel will boot into Update Mode (no sound)*
- 4) Copy the FW .uf2 file to the RPI-RP2 disk showing on your computer.*

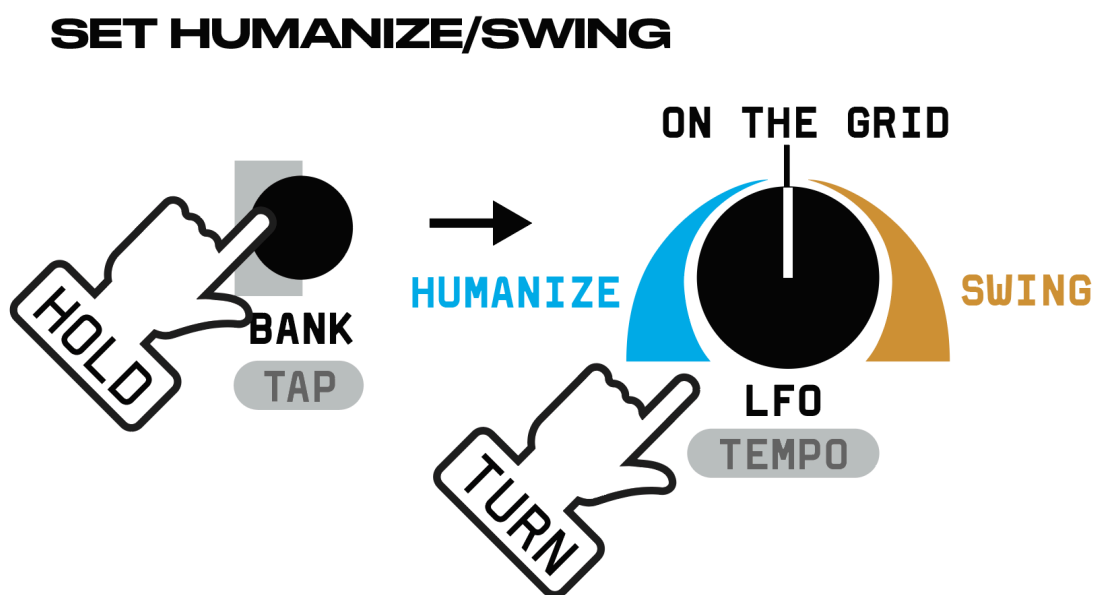
NOTE: *Depending on the .uf2 firmware file size, the upload can usually take up to 2 minutes or more.*

To check the firmware version:

- *Boot into Test Mode: Hold MODE/BANK button and turn the power ON.*
- *Listen to the Headphone Output / Audio Out directly: The unit will announce the firmware version via its voice output.*
- *Turn the power OFF and ON to exit the test mode*

NEW FIRMWARE FEATURES

HUMANIZE/SWING



Hold MODE/BANK and turn the LFO knob (bottom right) to adjust timing shifts applied to CV and GATE outputs:

- To the right, **SWING** is applied (orange)
 - delaying every second 16th note by up to 50% based on the knob position
- To the left **HUMANIZE** is applied (cyan)
 - delaying the timing of CV and GATE changes in an alternate predefined way
- In the center of the knob, the CV and GATE render exactly on the grid

LFO MOD assignable destination

You can change the destination of the LFO MOD input and knob so you can control secondary functions (normally accessed when SHIFT or MODE/BANK is held). This greatly enhances the modulation, sound design, and sequencing capabilities.

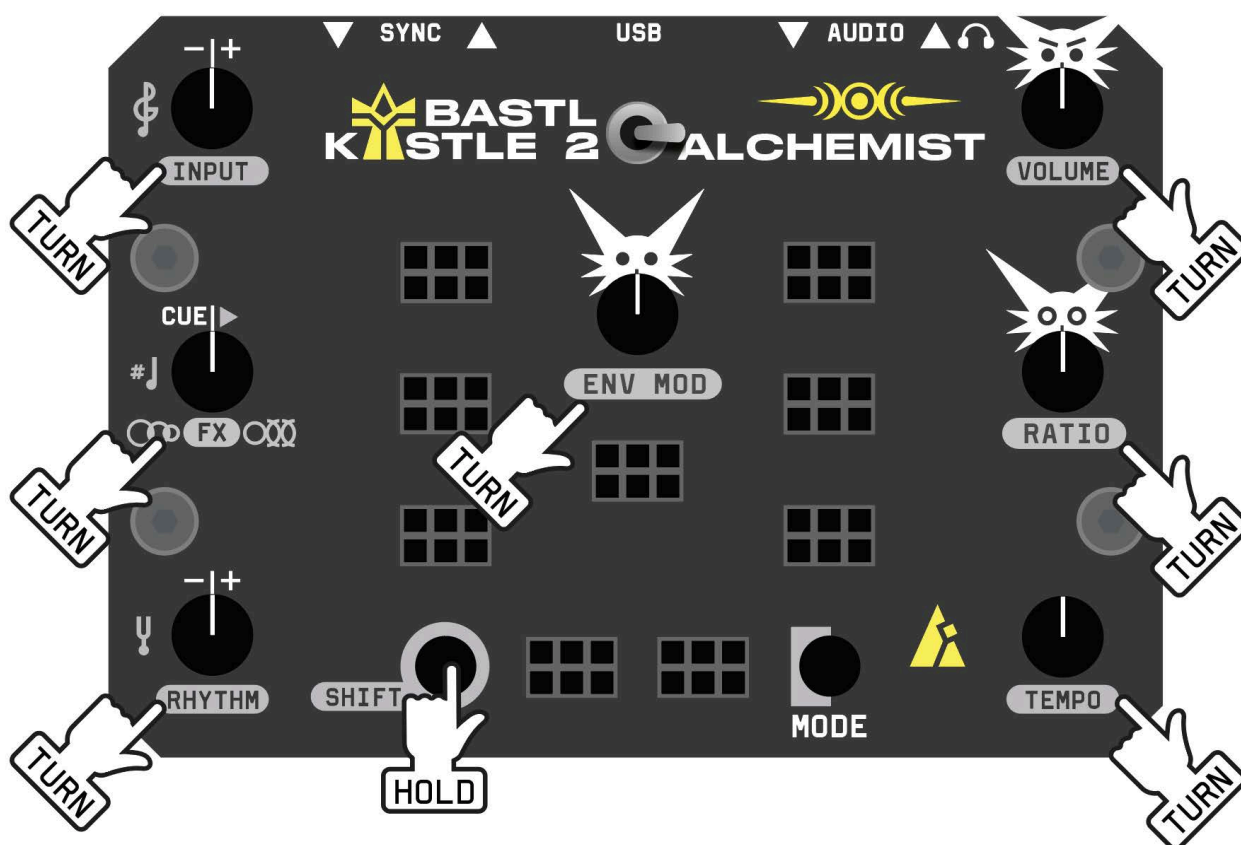
When you assign modulation to any secondary parameter, it will be added to that parameter's knob position. This means that if you have the parameter in the middle position, you can modulate it either way by applying the LFO MOD attenuverter.

Enter **Advanced Settings** (long press SHIFT + MODE/BANK >2s):



Hold SHIFT and turn a potentiometer to assign LFO MOD patch input + attenuverter to a parameter tweaked with the SHIFT button

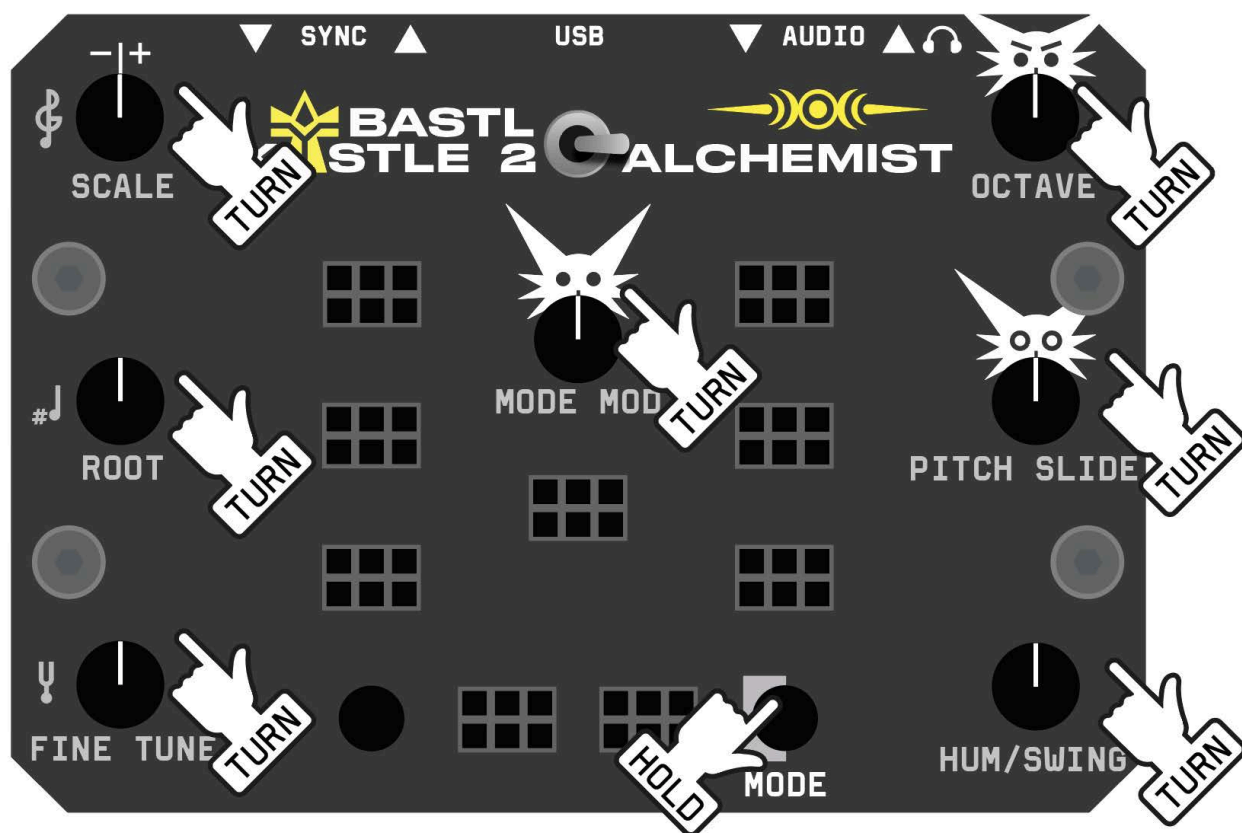
IN ADVANCED SETTINGS
SHIFT + TURN KNOB TO ASSIGN LFO MOD TO THE SHIFT+KNOB DESTINATION
ALL LIGHTS BLINK WHEN A CHANGE IS MADE



Example: Hold SHIFT and turn the LFO knob to adjust the TEMPO with CV. If you are synced to external tempo, the tempo divider will be modulated.

In **Advanced settings**, hold MODE/BANK and turn a potentiometer to assign LFO MOD patch input + attenuverter to a parameter tweaked with the MODE/BANK button

IN ADVANCED SETTINGS
MODE + TURN KNOB TO ASSIGN LFO MOD TO THE MODE+KNOB DESTINATION
ALL LIGHTS BLINK WHEN A CHANGE IS MADE



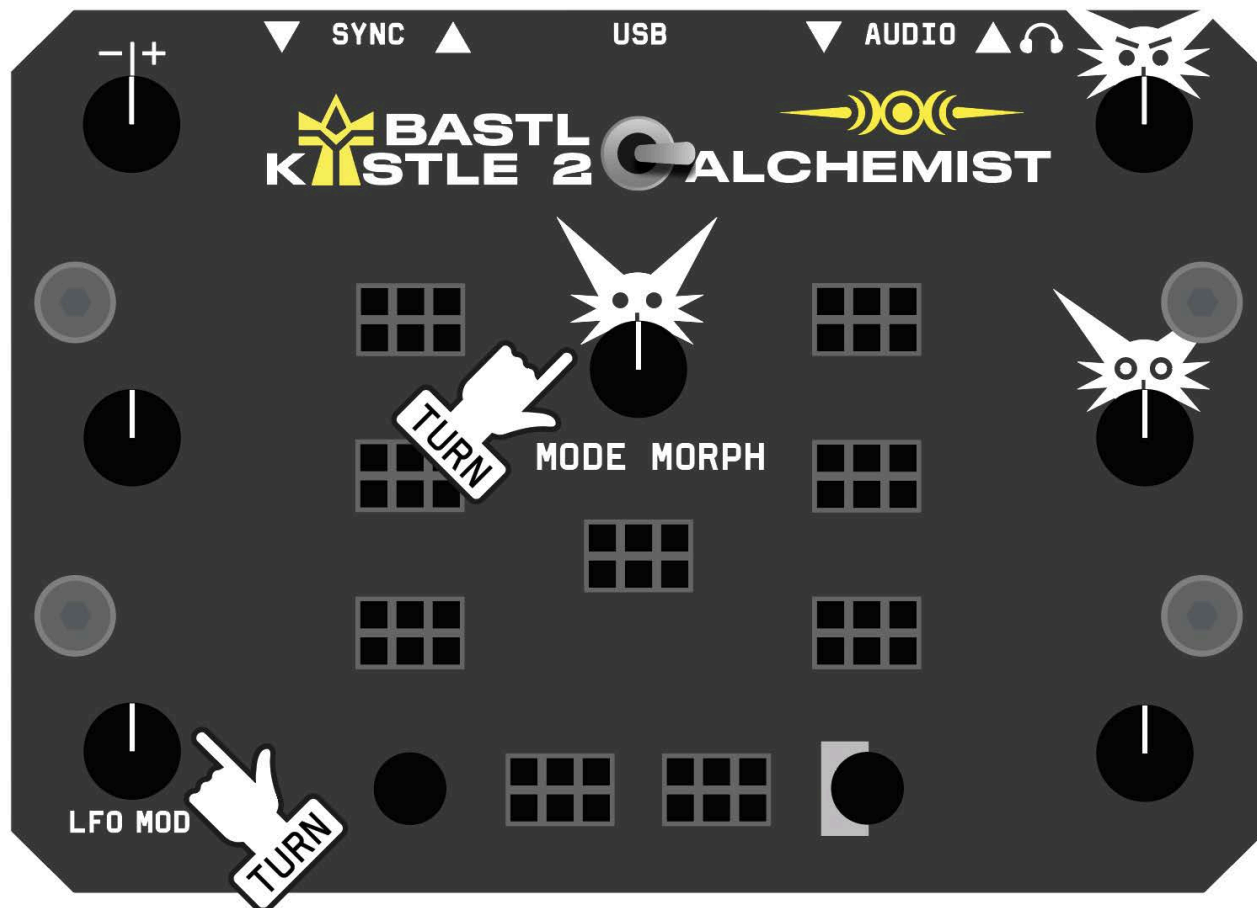
Example: Hold MODE/BANK and turn the LFO knob to adjust the HUMANIZE/SWING with CV.

In **Advanced Settings**, turn the LFO MOD pot without holding any button to clear the custom assignment.

IN ADVANCED SETTINGS

TURN LFO MOD KNOB (WITHOUT HOLDING ANY BUTTON) TO RETURN TO DEFAULT LFO MOD ASSIGNMENT

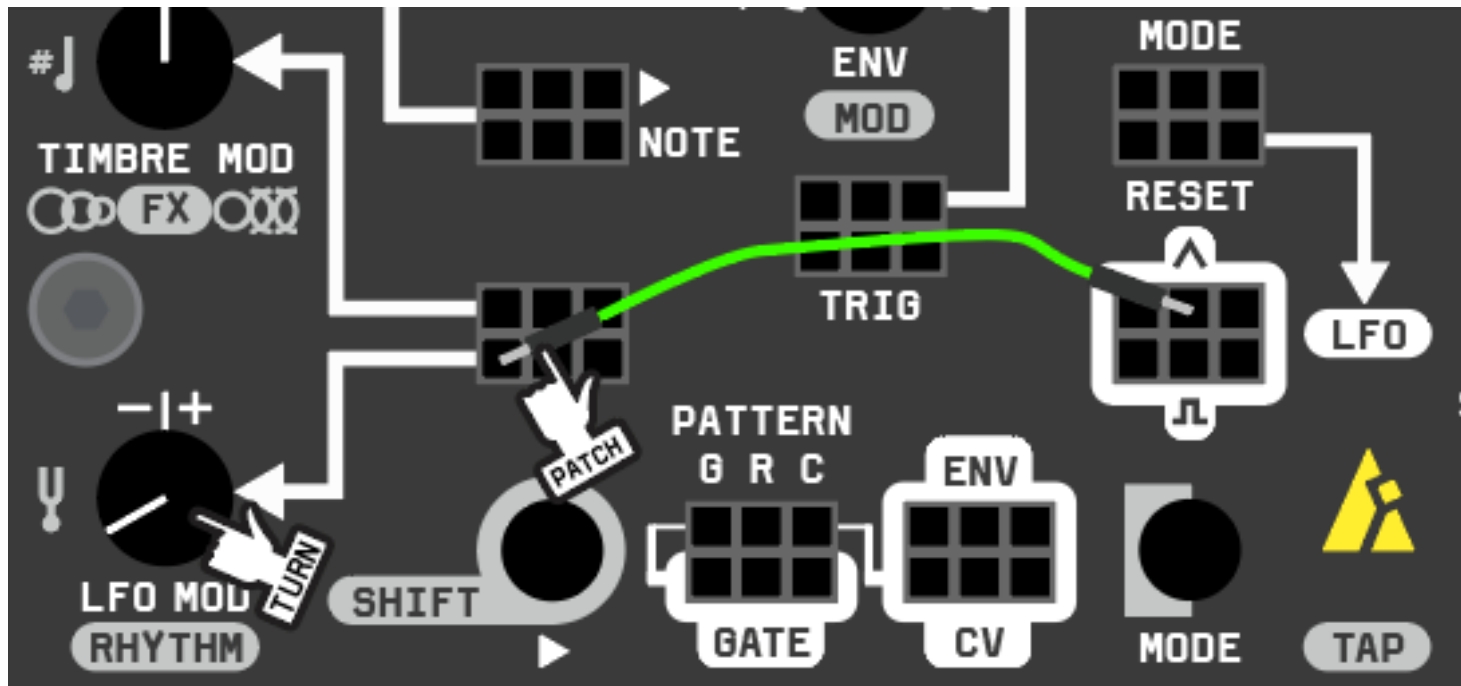
TURN THE ENV KNOB TO ASSIGN LFO MOD TO MORPHING INTO NEIGHBOURING MODES
ALL LIGHTS BLINK WHEN A CHANGE IS MADE



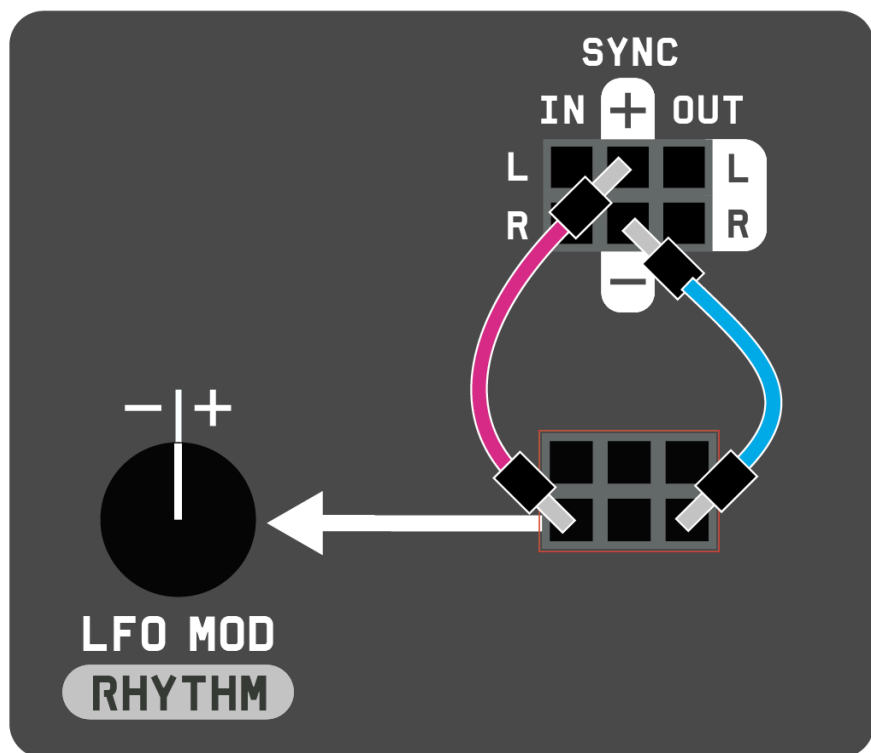
Leave **Advanced Settings** (long press SHIFT + MODE/BANK >2s):



Patch LFO triangle output into LFO MOD and turn the potentiometer to the left. Now the LFO modulates the assigned LFO MOD destination.



Tip: You can use the assignment feature to have direct access to the secondary layer knob. To do that, you can patch + and - patch points to the LFO MOD input and set the secondary parameter you are exposing in the middle.



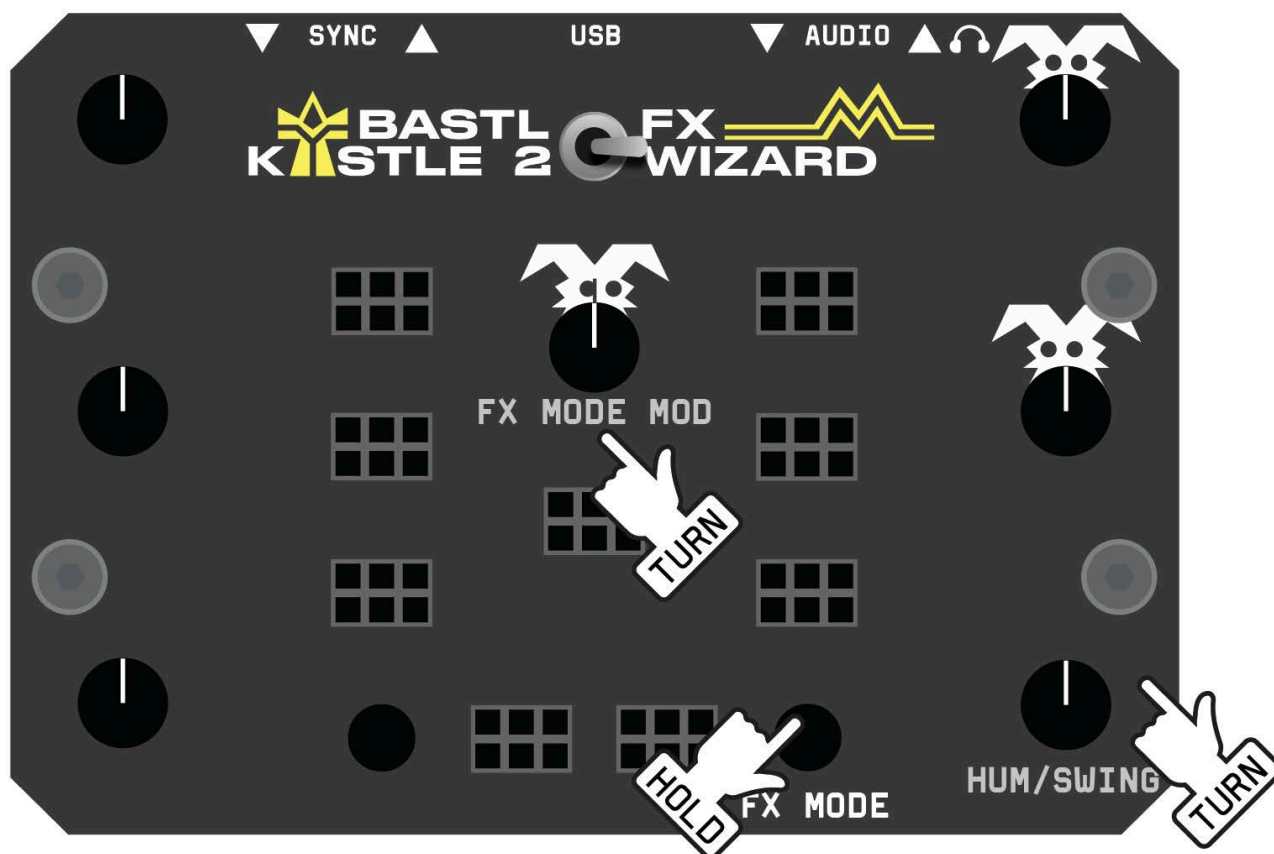
FX Wizard available assignments for LFO MOD

Controls	Destination
LFO MOD	LFO Mod (default)
SHIFT+TIME MOD	Input Volume
SHIFT+FEEDBACK MOD	Stereo
SHIFT+LFO MOD	Rhythm
SHIFT+AMOUNT	Amount Mod-Mod
SHIFT+TIME	Output Volume
SHIFT+FEEDBACK	Filter
SHIFT+LFO	Tempo
FX MODE+AMOUNT	FX Mode Mod-Mod
FX MODE+LFO	Humanize/Swing

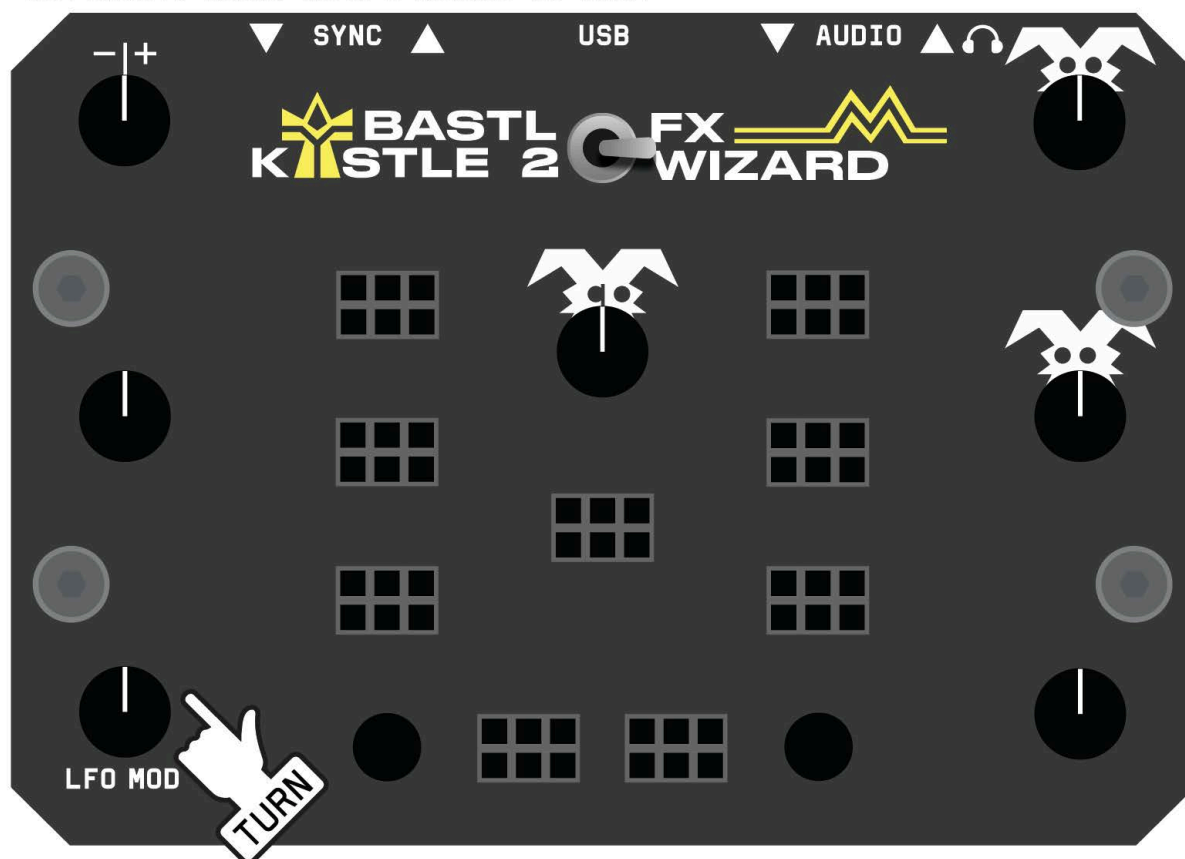
IN ADVANCED SETTINGS
SHIFT + TURN KNOB TO ASSIGN LFO MOD TO THE SHIFT+KNOB DESTINATION
ALL LIGHTS BLINK WHEN A CHANGE IS MADE



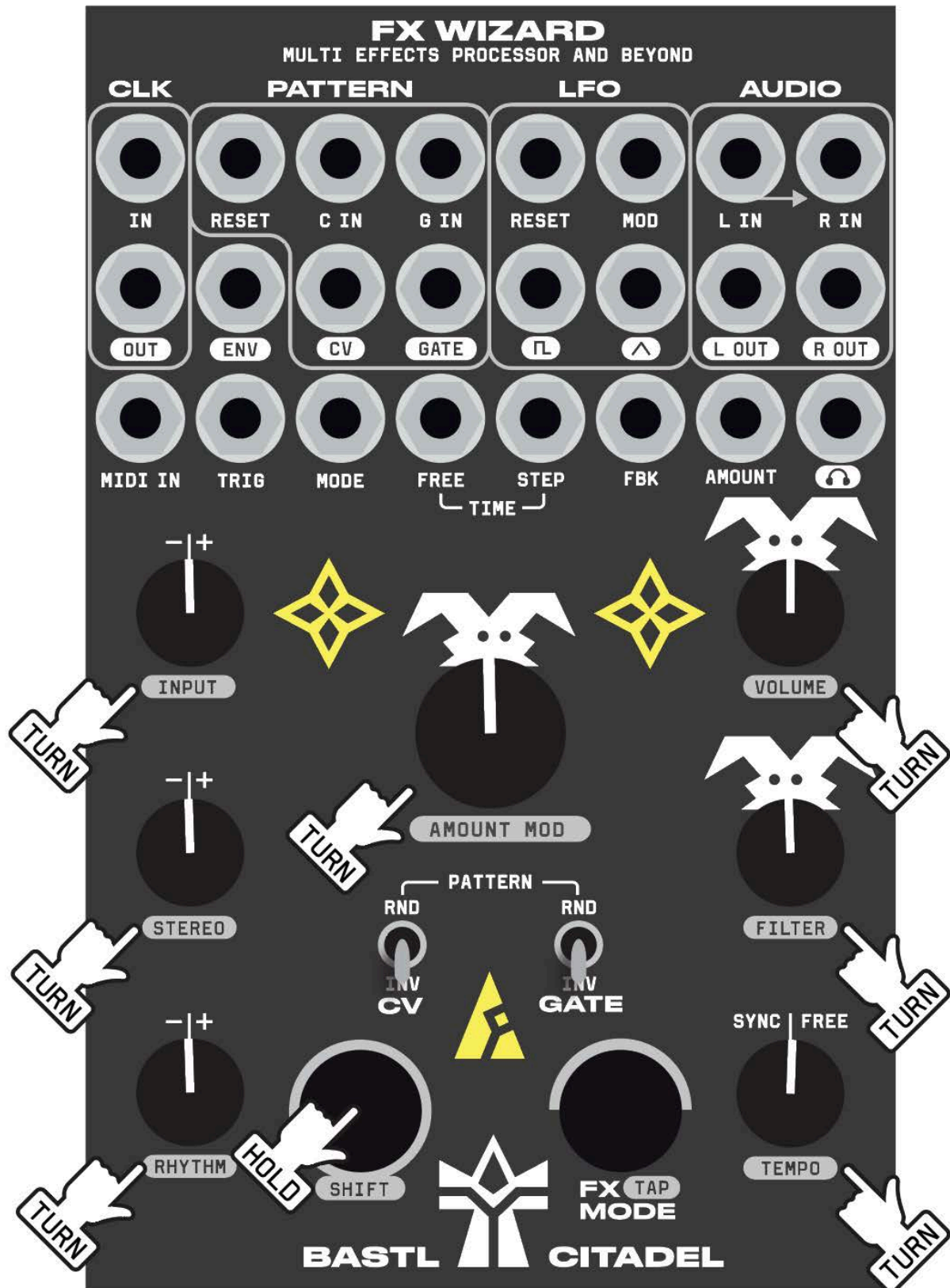
IN ADVANCED SETTINGS
FX MODE + TURN KNOB TO ASSIGN LFO MOD TO THE FX MODE+KNOB DESTINATION
ALL LIGHTS BLINK WHEN A CHANGE IS MADE



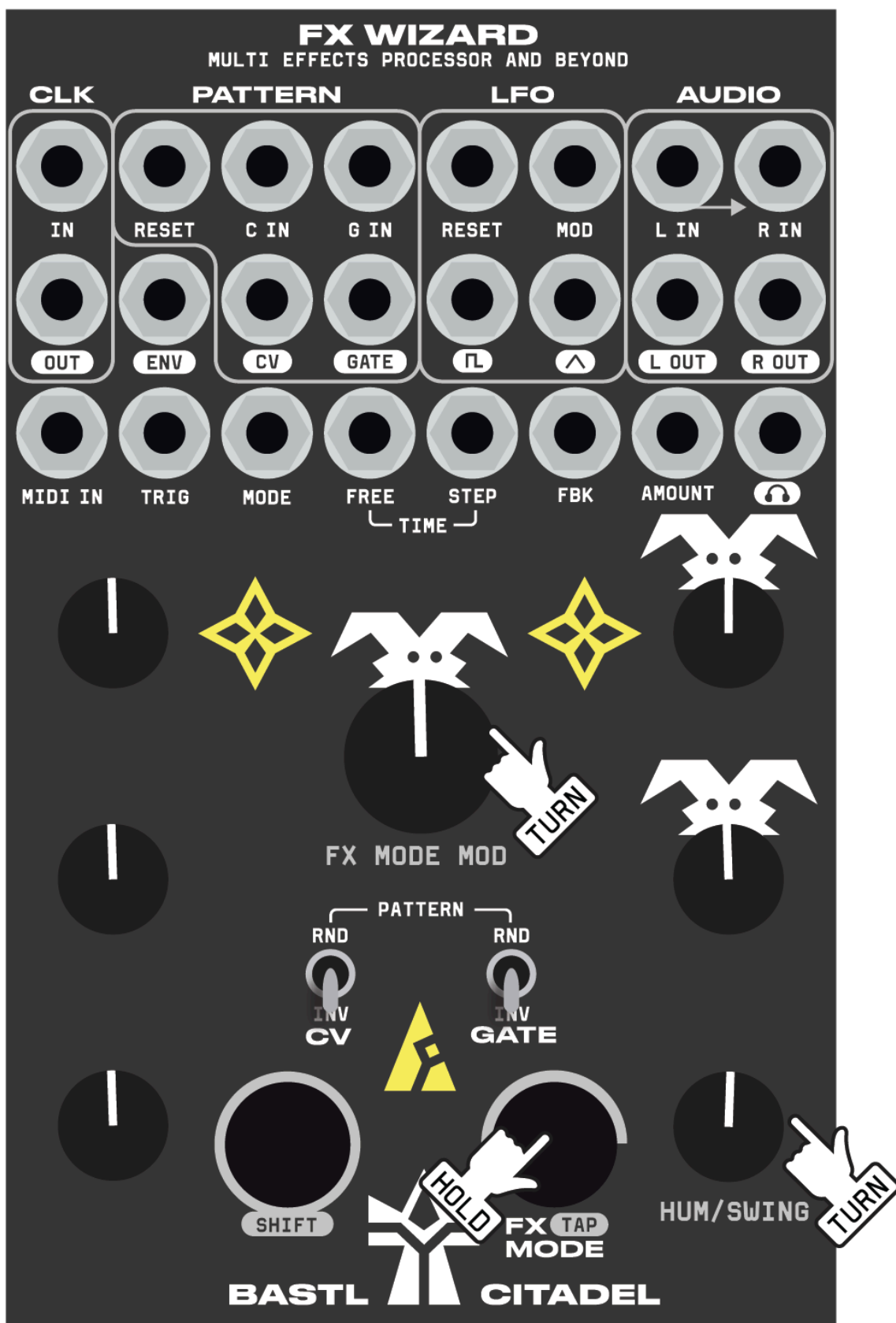
IN ADVANCED SETTINGS
TURN LFO MOD KNOB (WITHOUT HOLDING ANY BUTTON) TO RETURN TO DEFAULT LFO
MOD ASSIGNMENT
ALL LIGHTS BLINK WHEN A CHANGE IS MADE



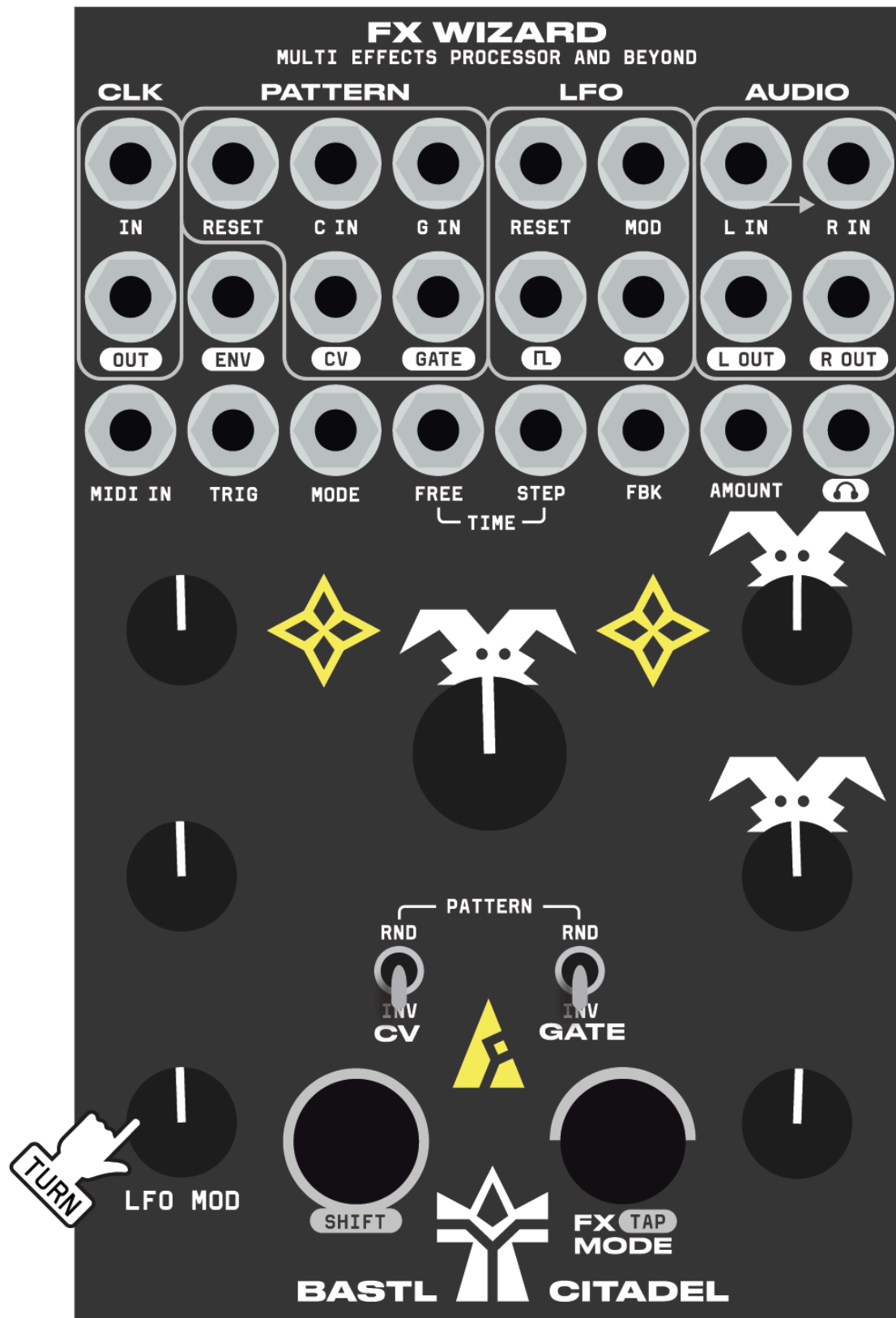
IN ADVANCED SETTINGS
SHIFT + TURN KNOB TO ASSIGN LFO MOD TO THE SHIFT+KNOB DESTINATION
ALL LIGHTS BLINK WHEN A CHANGE IS MADE



IN ADVANCED SETTINGS
FX MODE + TURN KNOB TO ASSIGN LFO MOD TO THE FX MODE+KNOB DESTINATION
ALL LIGHTS BLINK WHEN A CHANGE IS MADE



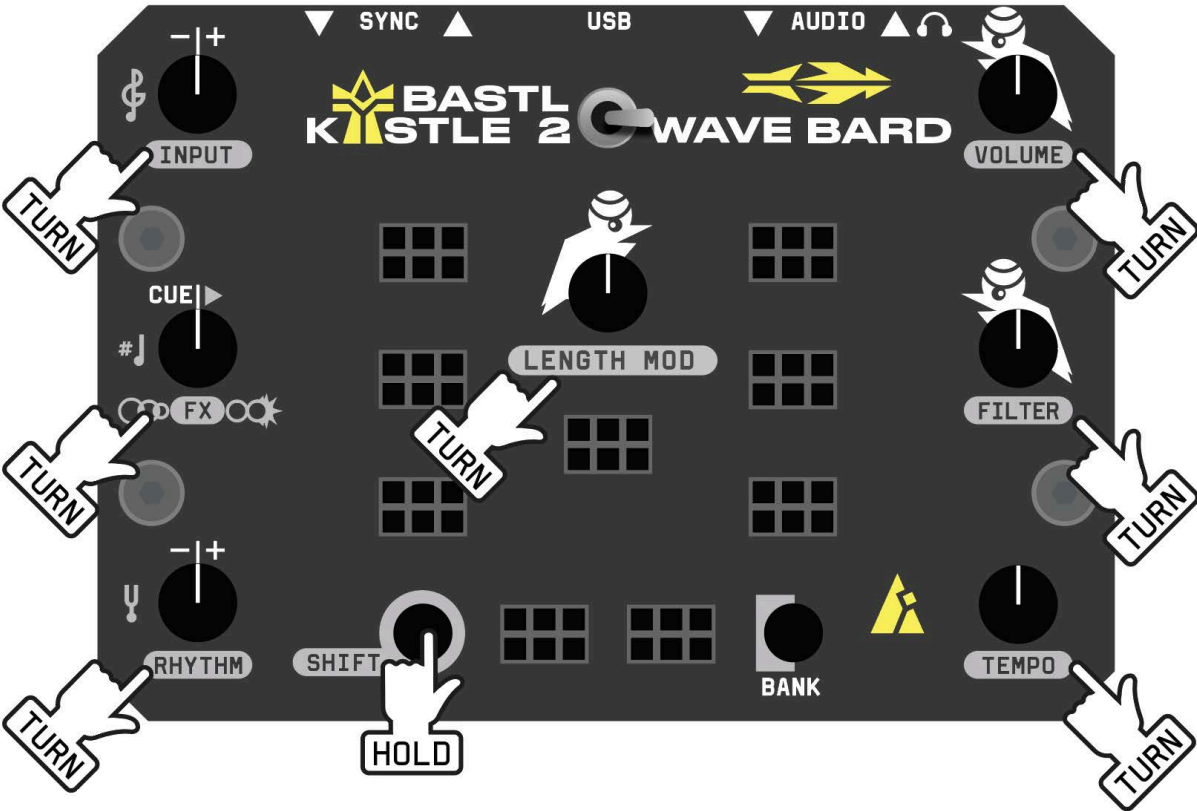
IN ADVANCED SETTINGS
TURN LFO MOD KNOB (WITHOUT HOLDING ANY BUTTON) TO RETURN TO DEFAULT LFO
MOD ASSIGNMENT
ALL LIGHTS BLINK WHEN A CHANGE IS MADE



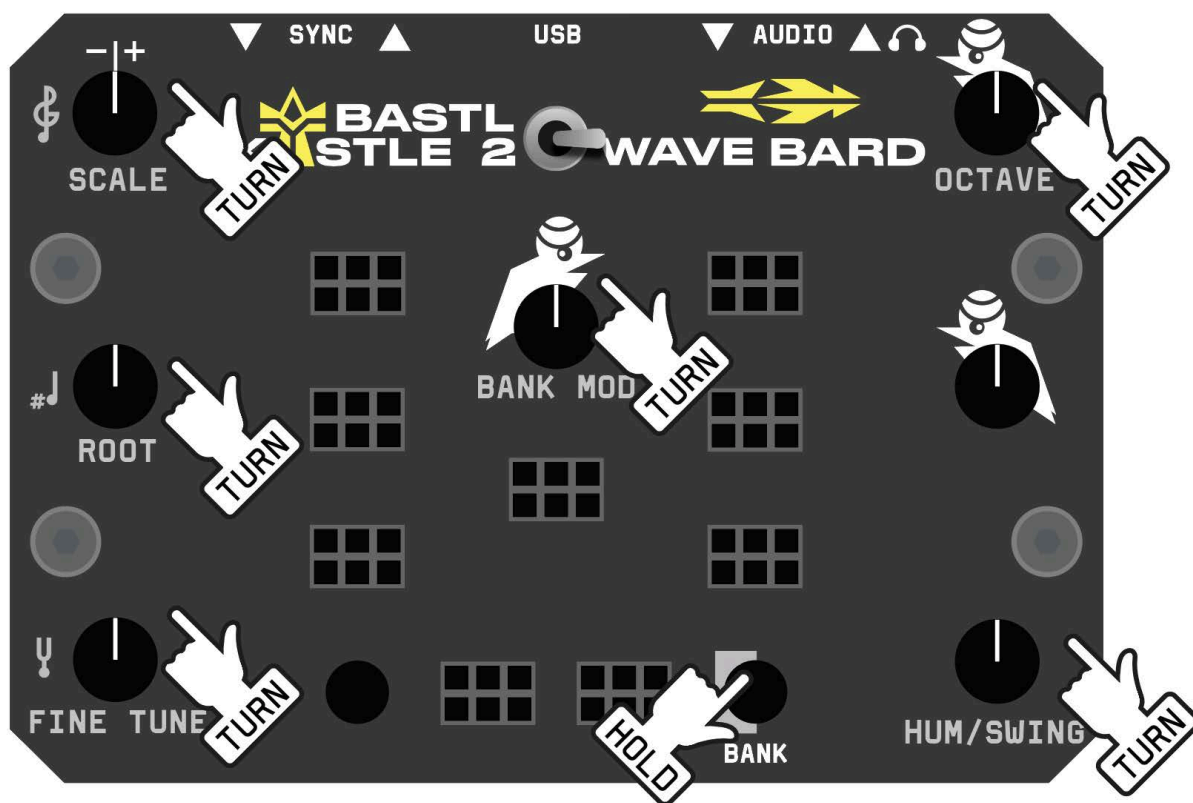
Wave Bard available assignments for LFO MOD

Controls	Destination
LFO MOD	LFO Mod (default)
SHIFT+PITCH MOD	Input Volume
SHIFT+SAMPLE MOD	FX
SHIFT+LFO MOD	Rhythm
SHIFT+LENGTH	Length Mod-Mod
SHIFT+PITCH	Output Volume
SHIFT+TIMBRE	Filter
SHIFT+LFO	Tempo
BANK+PITCH MOD	Scale
BANK+SAMPLE MOD	Root Note
BANK+LFO MOD	Fine Tune
BANK+LENGTH	Bank Mod-Mod
BANK+PITCH	Octave
BANK+LFO	Humanize/Swing

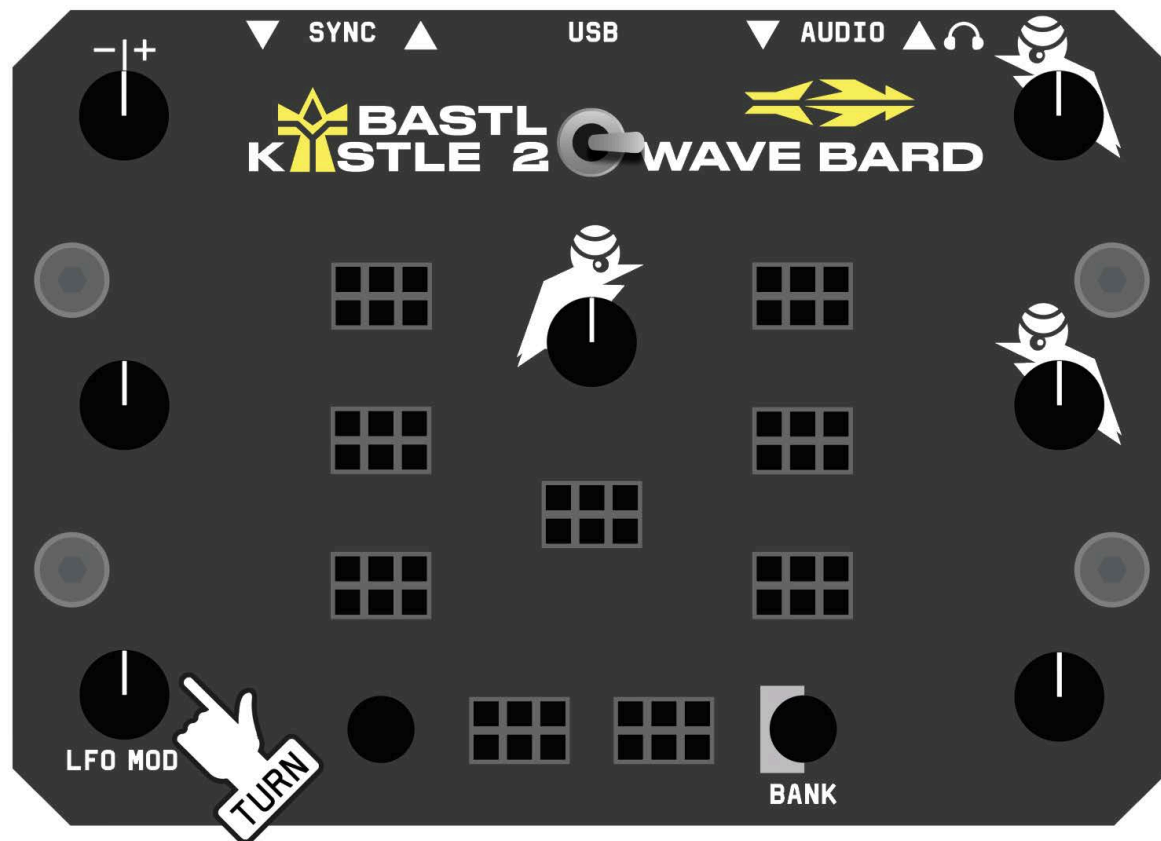
IN ADVANCED SETTINGS
SHIFT + TURN KNOB TO ASSIGN LFO MOD TO THE SHIFT+KNOB DESTINATION
ALL LIGHTS BLINK WHEN A CHANGE IS MADE



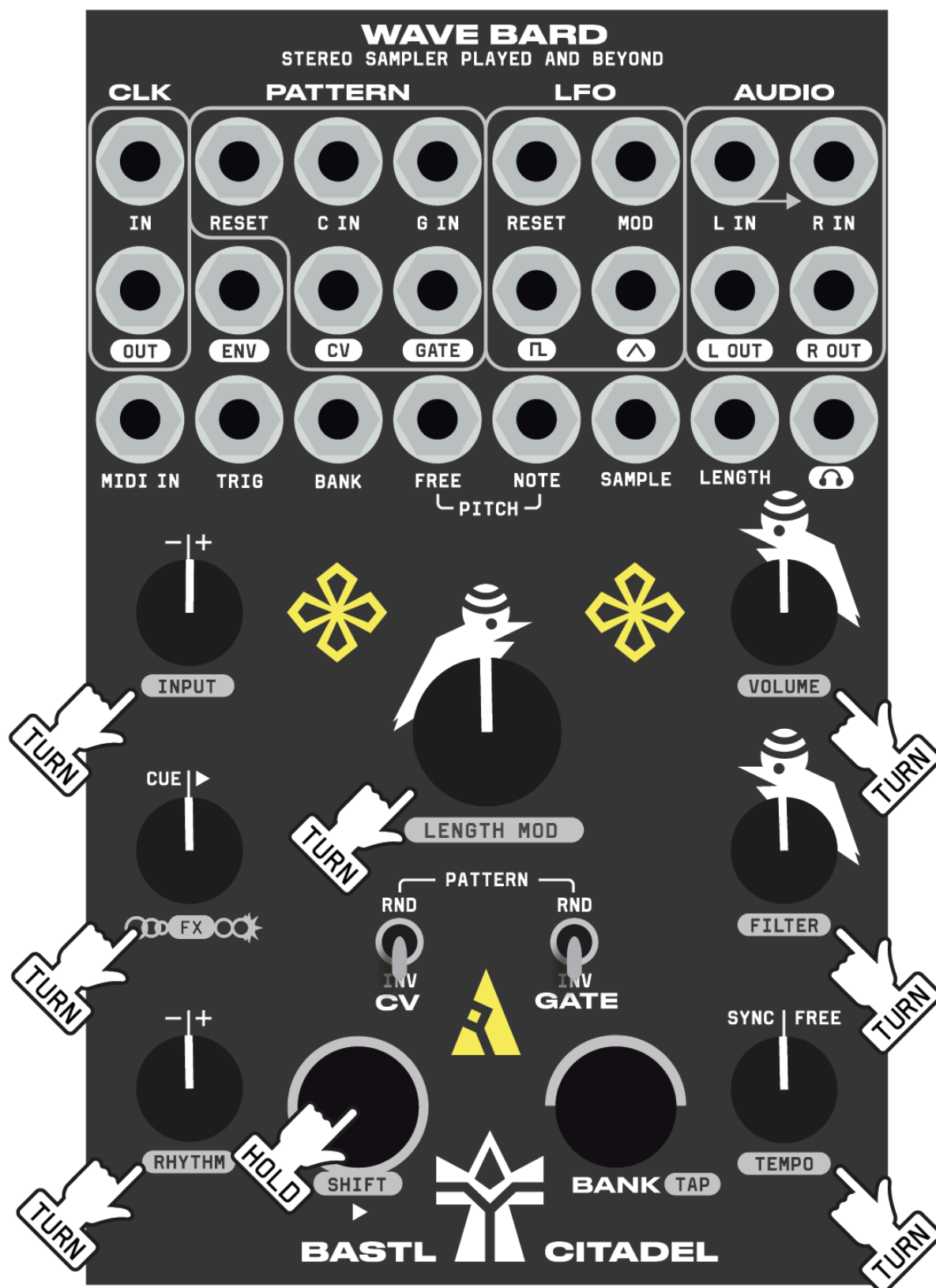
IN ADVANCED SETTINGS
BANK + TURN KNOB TO ASSIGN LFO MOD TO THE BANK+KNOB DESTINATION
ALL LIGHTS BLINK WHEN A CHANGE IS MADE



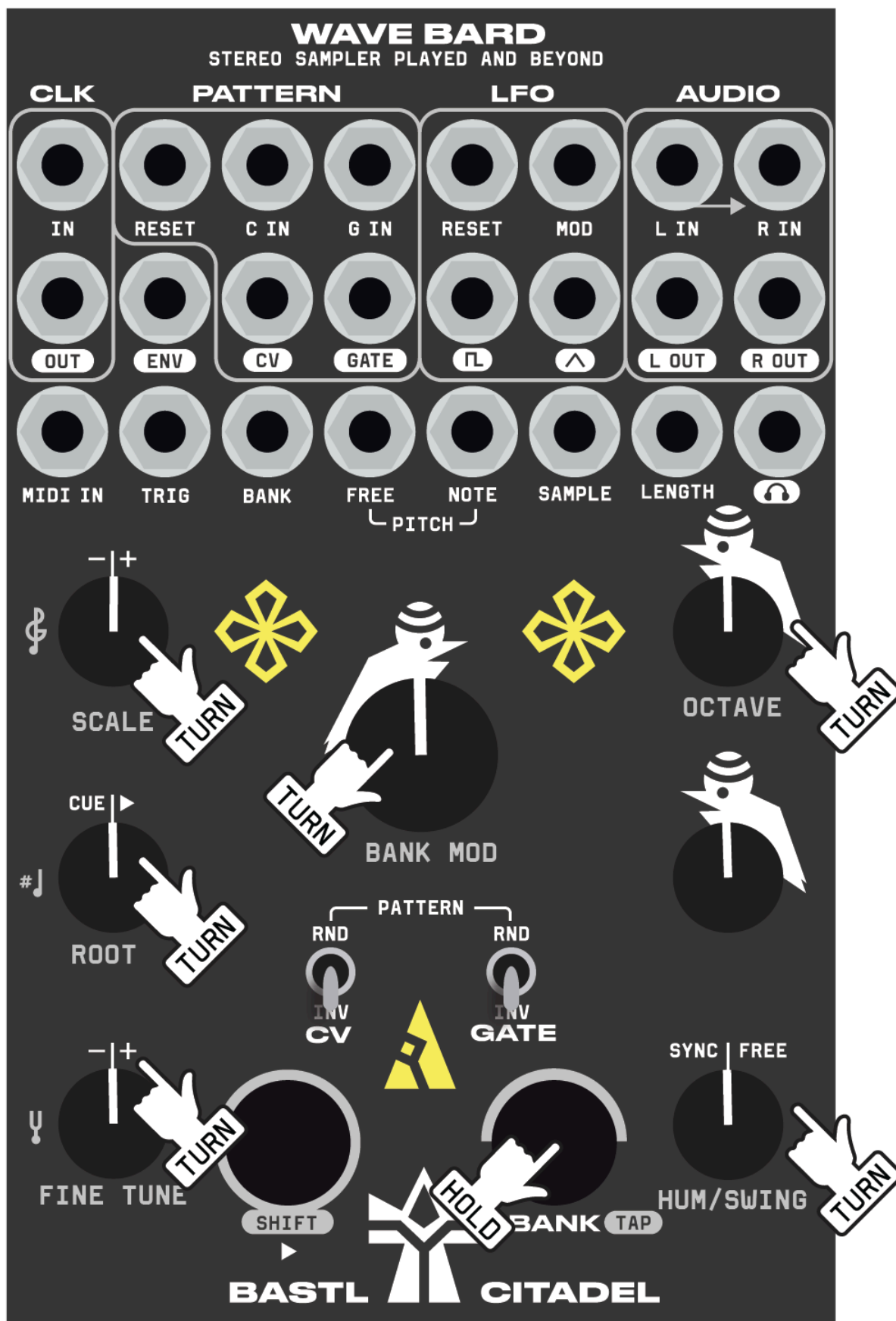
IN ADVANCED SETTINGS
TURN LFO MOD KNOB (WITHOUT TURNING ANY BUTTON) TO RETURN TO DEFAULT LFO
MOD ASSIGNMENT
ALL LIGHTS BLINK WHEN A CHANGE IS MADE



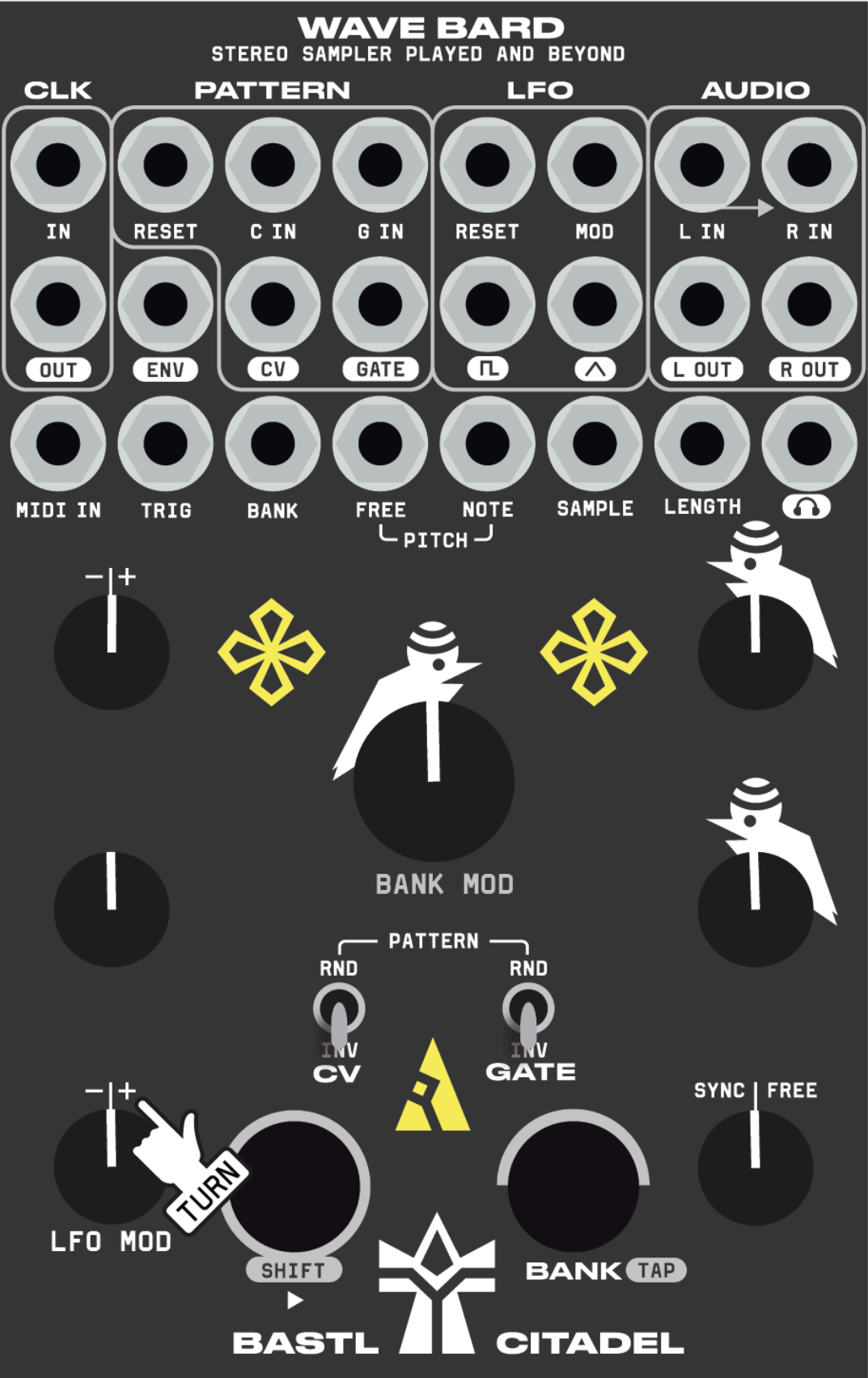
IN ADVANCED SETTINGS
 SHIFT + TURN KNOB TO ASSIGN LFO MOD TO THE SHIFT+KNOB DESTINATION
 ALL LIGHTS BLINK WHEN A CHANGE IS MADE



IN ADVANCED SETTINGS
BANK + TURN KNOB TO ASSIGN LFO MOD TO THE BANK+KNOB DESTINATION
ALL LIGHTS BLINK WHEN A CHANGE IS MADE



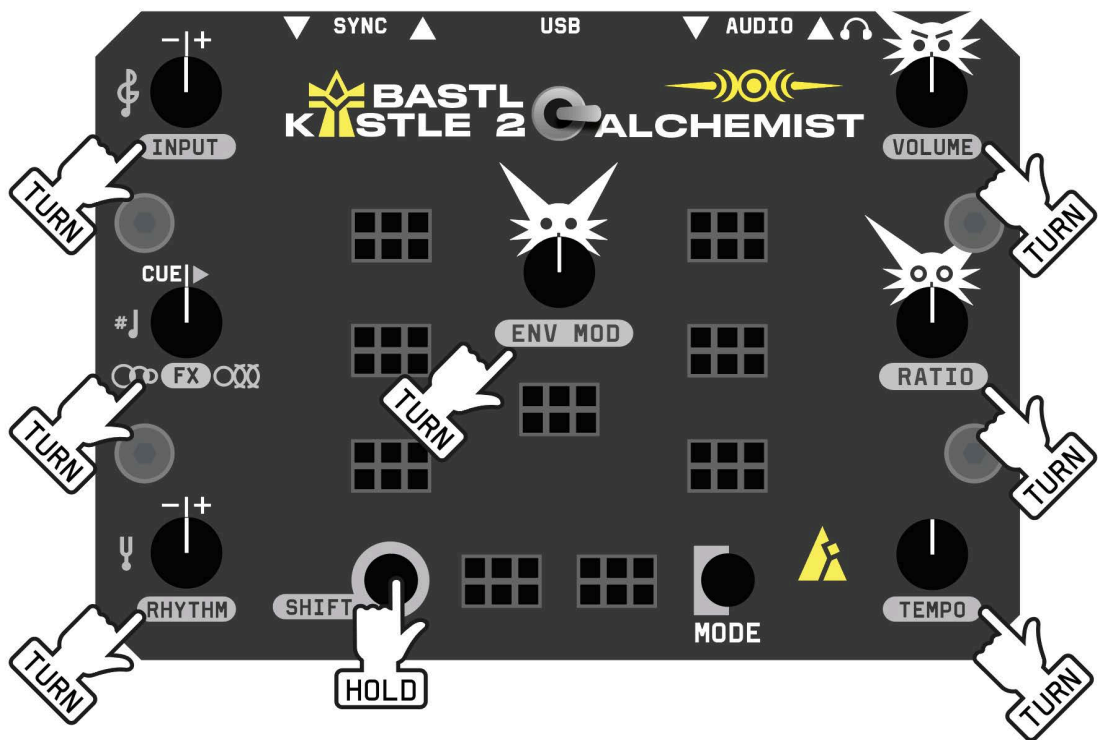
IN ADVANCED SETTINGS
TURN LFO MOD KNOB (WITHOUT HOLDING ANY BUTTON) TO RETURN TO DEFAULT LFO
MOD ASSIGNMENT
ALL LIGHTS BLINK WHEN A CHANGE IS MADE



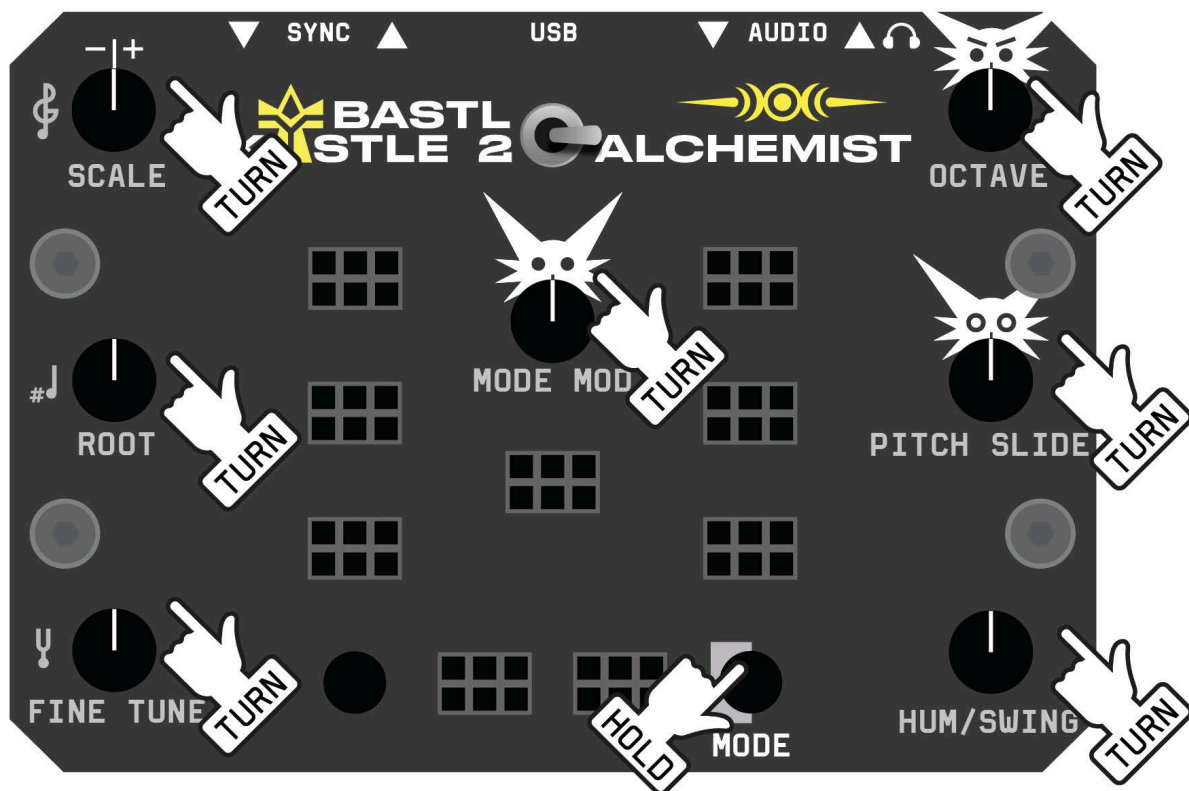
Alchemist available assignments for LFO MOD

Controls	Destination
LFO MOD	LFO Mod (default)
ENV	Neighboring Modes Blending
SHIFT+PITCH MOD	Input Volume
SHIFT+TIMBRE MOD	FX
SHIFT+LFO MOD	Rhythm
SHIFT+ENV	Envelope Mod-Mod
SHIFT+PITCH	Output Volume
SHIFT+TIMBRE	Ratio
SHIFT+LFO	Tempo
MODE+PITCH MOD	Scale
MODE+TIMBRE MOD	Root Note
MODE+LFO MOD	Fine Tune
MODE+ENV	Mode Mod-Mod
MODE+PITCH	Octave
MODE+TIMBRE	Pitch Slide
MODE+LFO	Humanize/Swing

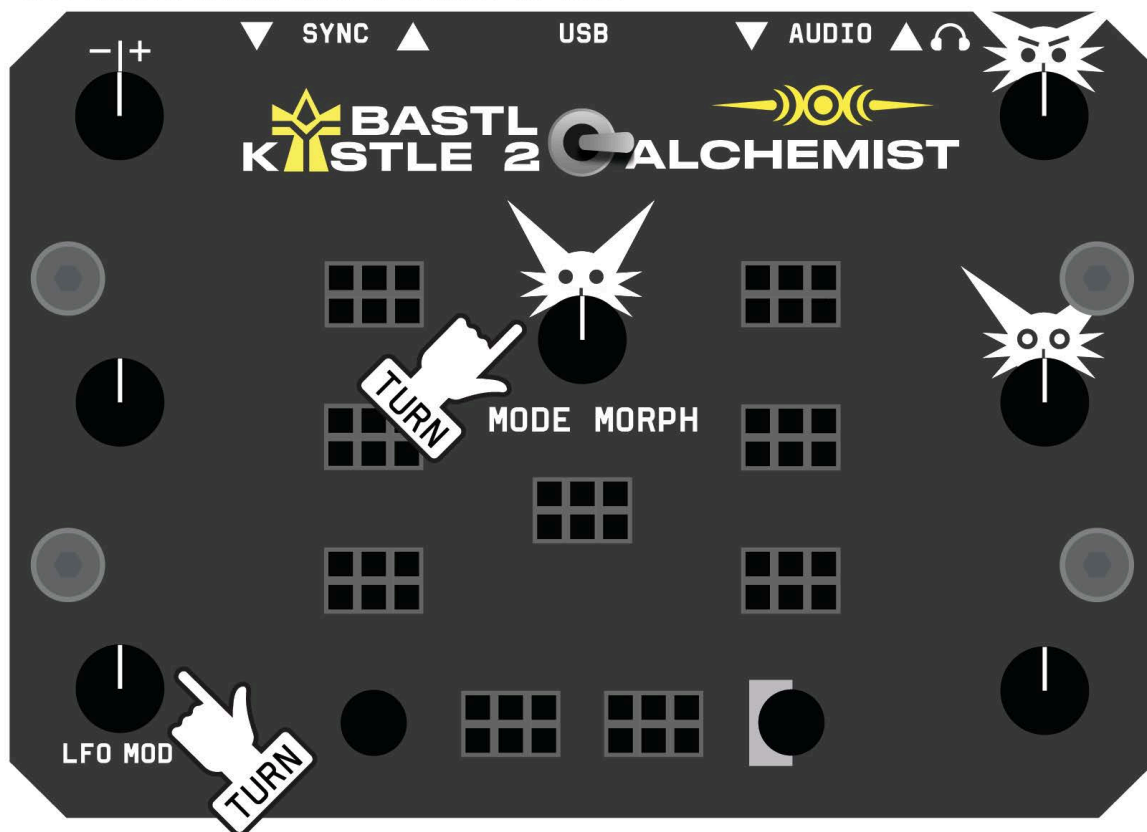
IN ADVANCED SETTINGS
SHIFT + TURN KNOB TO ASSIGN LFO MOD TO THE SHIFT+KNOB DESTINATION
ALL LIGHTS BLINK WHEN A CHANGE IS MADE



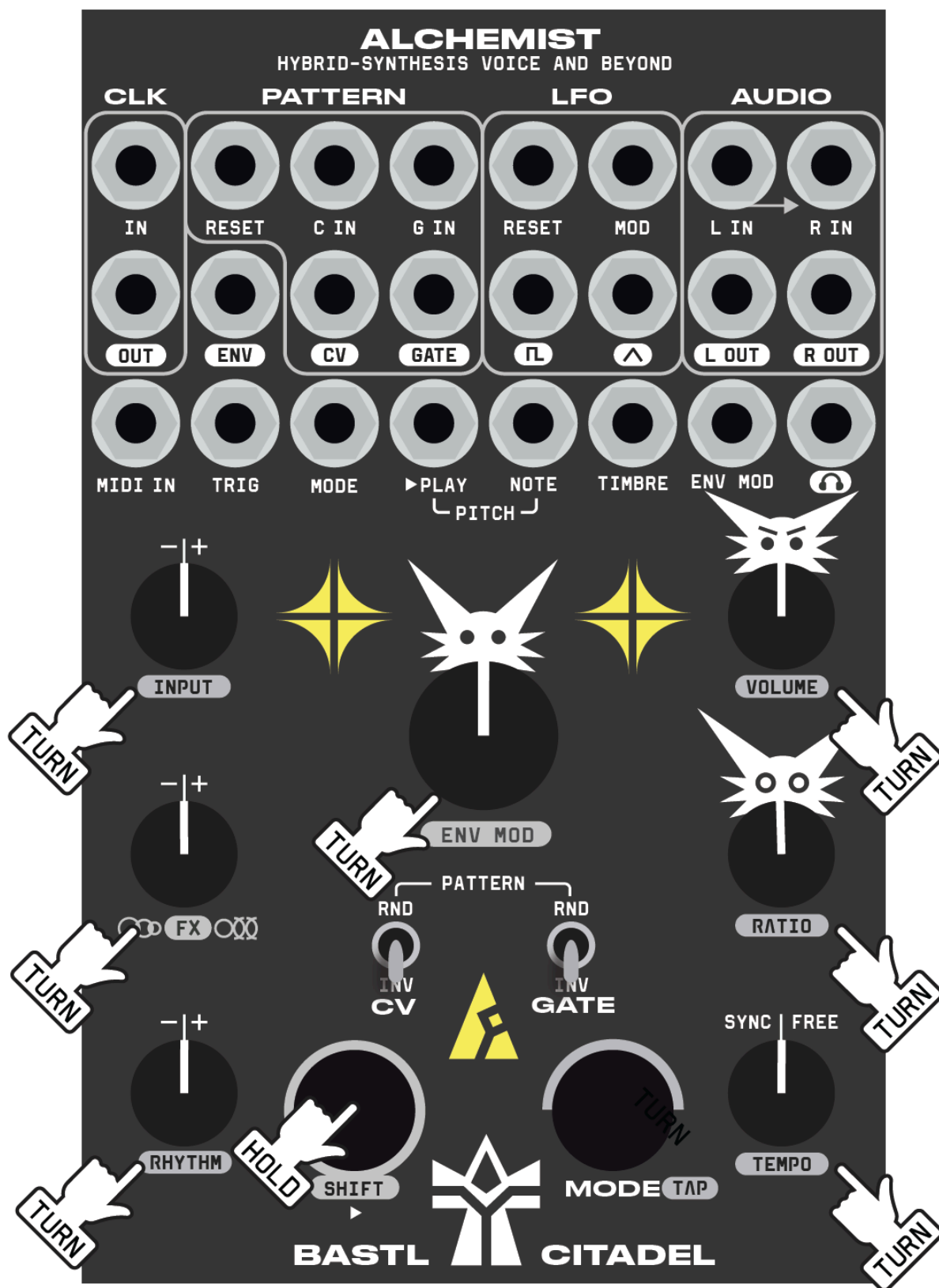
IN ADVANCED SETTINGS
 MODE + TURN KNOB TO ASSIGN LFO MOD TO THE MODE+KNOB DESTINATION
 ALL LIGHTS BLINK WHEN A CHANGE IS MADE



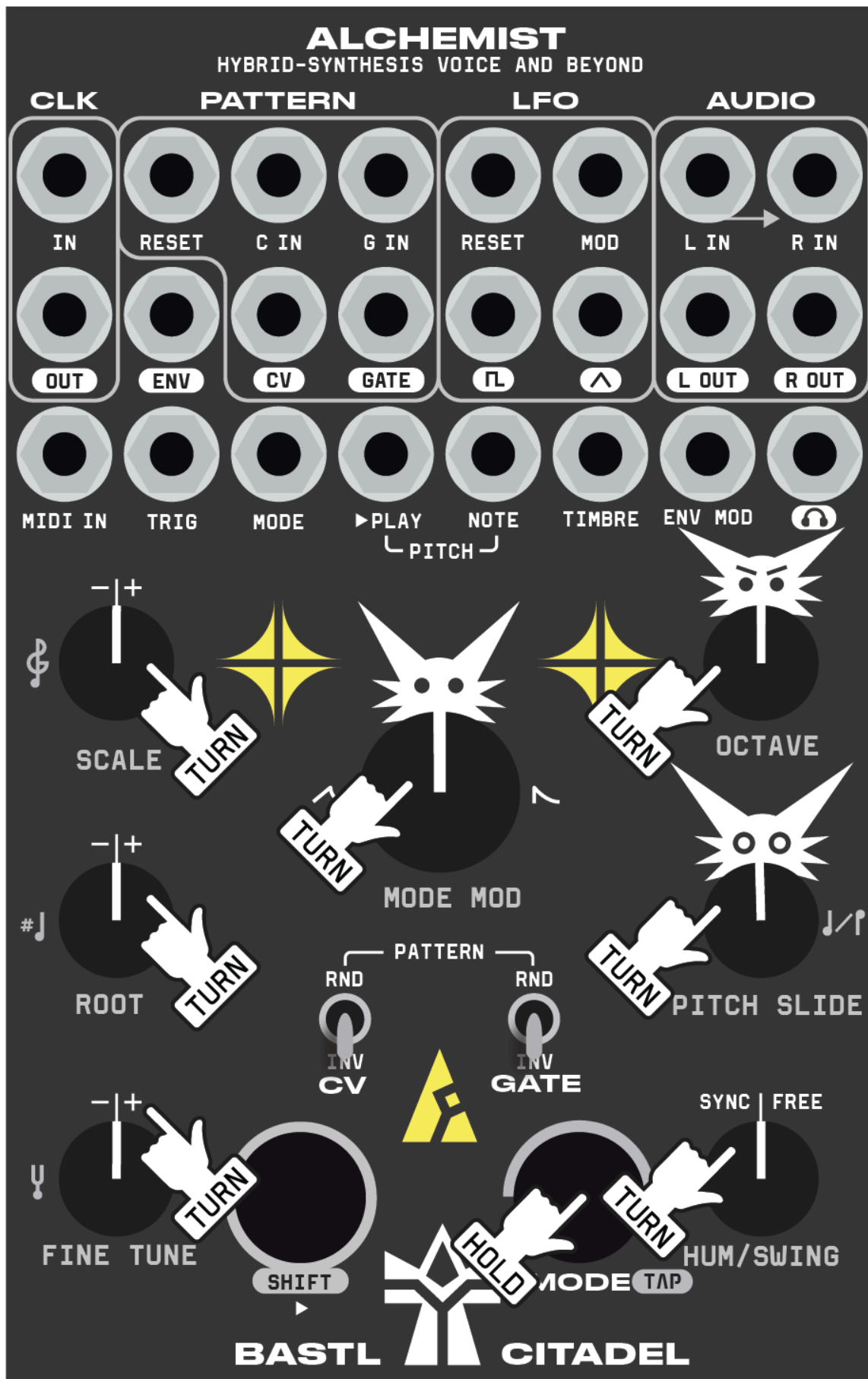
IN ADVANCED SETTINGS
 TURN LFO MOD KNOB (WITHOUT HOLDING ANY BUTTON) TO RETURN TO DEFAULT LFO
 MOD ASSIGNMENT
 TURN THE ENV KNOB TO ASSIGN LFO MOD TO MORPHING INTO NEIGHBOURING MODES
 ALL LIGHTS BLINK WHEN A CHANGE IS MADE



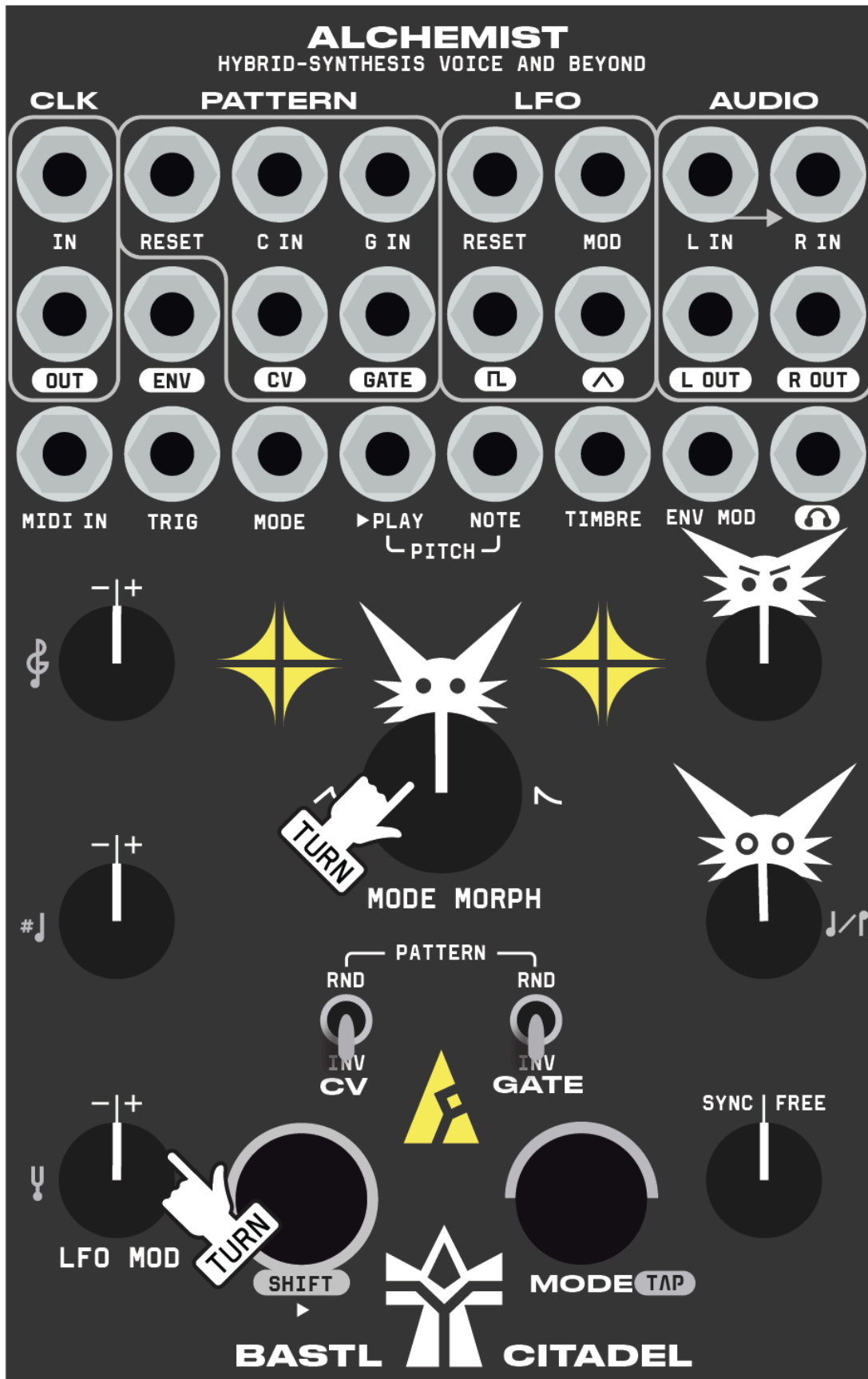
IN ADVANCED SETTINGS
 SHIFT + TURN KNOB TO ASSIGN LFO MOD TO THE SHIFT+KNOB DESTINATION
 ALL LIGHTS BLINK WHEN A CHANGE IS MADE



IN ADVANCED SETTINGS
 MODE + TURN KNOB TO ASSIGN LFO MOD TO THE MODE+KNOB DESTINATION
 ALL LIGHTS BLINK WHEN A CHANGE IS MADE



IN ADVANCED SETTINGS
 TURN LFO MOD KNOB (WITHOUT HOLDING ANY BUTTON) TO RETURN TO DEFAULT LFO
 MOD ASSIGNMENT
 TURN THE ENV KNOB TO ASSIGN LFO MOD TO MORPHING INTO NEIGHBOURING MODES
 ALL LIGHTS BLINK WHEN A CHANGE IS MADE



NOTE: Due to the hardware limitations, the input and volume modulation are not a clean, all-purpose VCA. However, it can be used as a tremolo or creative effect. Especially the volume modulation can boost the signal into a distortion

MIDI IMPLEMENTATION

Alchemist

- Added MIDI sustain and velocity.
- Added CC32 to control Humanize/Swing.

FX Wizard

- Added CC32 to control Humanize/Swing.

Wave Bard

- Added CC32 to control Humanize/Swing.