BEST STEREO MIXER FRIEND

BASTL INSTRUMENTS

Bestie Manual

Bestie is a 5-channel stereo mixer with up to 20 dB boost, mute switch per channel, and flexible connectivity. However, Bestie is not just a mixer but also a stereo distortion/saturator with a pre-routed feedback channel that can create juicy, crunchy sounds. Mixing with Bestie can be pure vanilla if you keep all the levels left of the 12 o'clock position, but once you start boosting, Bestie can quickly turn into a Beast. Once you start to overload the mixer, the sounds can start to fight for dominance.

The dedicated headphone output offers a loudness control with a smooth mixdown overdrive character and a pre/post mute switch for pre-listening to all your channels before unmuting them to the speakers.
USB-C and AA battery power options make it perfect for portable setups without compromising sound quality.
Channels 1 and 5 have a flexible connectivity scheme accommodating 2x mono cable for left and right channels or 1x cable mono to split to both channels or a classic stereo jack.

The Feedback Channel

Channel 3 serves as a feedback channel, which means it routes the output back to the input. If you plug anything into the Channel 3 input, it functions as a normal input channel.
When utilizing Channel 3 as a feedback channel, the level before the 12 o'clock position functions as an added distortion and gain. If boosted beyond 0 dB, it will begin to self-oscillate and generate increasingly deeper tones as the channel is further amplified. At maximum settings, it produces distinct tremolo-like effects.

A big part of the sonic aesthetics of Bastl Instruments and Casper Electronics is influenced by the so-called no-input-mixing technique. This is the technique of routing the output back to the input on mixing consoles and using gain and EQ to create different tones and noises without plugging any signals into the mixer. However, fascinating outcomes arise when these feedback signals are interrupted by elements such as drums. They interact with the feedback tones and compete for dominance. Bestie is well suited for such experiments and directly encourages you to overload its circuitry and make the signals go ape.

Features

- 5 stereo channels
- Mute switch with light indication per channel
- Level control per channel with up to 20 dB boost
- Low noise preamps with sweet overdrive character (same as Dude)
- Inputs via 3.5 mm stereo jacks
- 3.5 mm jack output
- 3.5 mm jack headphone output with loudness control
- Pre/Post mute option for the headphone output (pre-listen)
- Channel 3 is normalized to the output, making it a default feedback channel.
- Channels 1 and 5 have two 3.5 mm jacks to also accept dual jack stereo or mono signals.
- USB-C power or 4x AA Battery power

Technical details

- Dimensions: 101 x 69 x 51 mm
- Current consumption: 90 mA (without headphones), up to 200 mA (with headphones)
- Spacing between jacks: 12 mm (center to center)
- Input impedance: 22 kΩ
- Output impedance: 100 Ω
- Headphone impedance: 8–250 Ω

A Power up

Connect USB-C to a powered USB connector or insert 4x AA batteries. If using batteries, we highly encourage you to use rechargeable ones. Flip the power switch to the ON position, and the light on the front panel under the name Bestie will light up.

Note: USB-C input will take priority over AA batteries. Batteries will not be charged when using it.

B Inputs

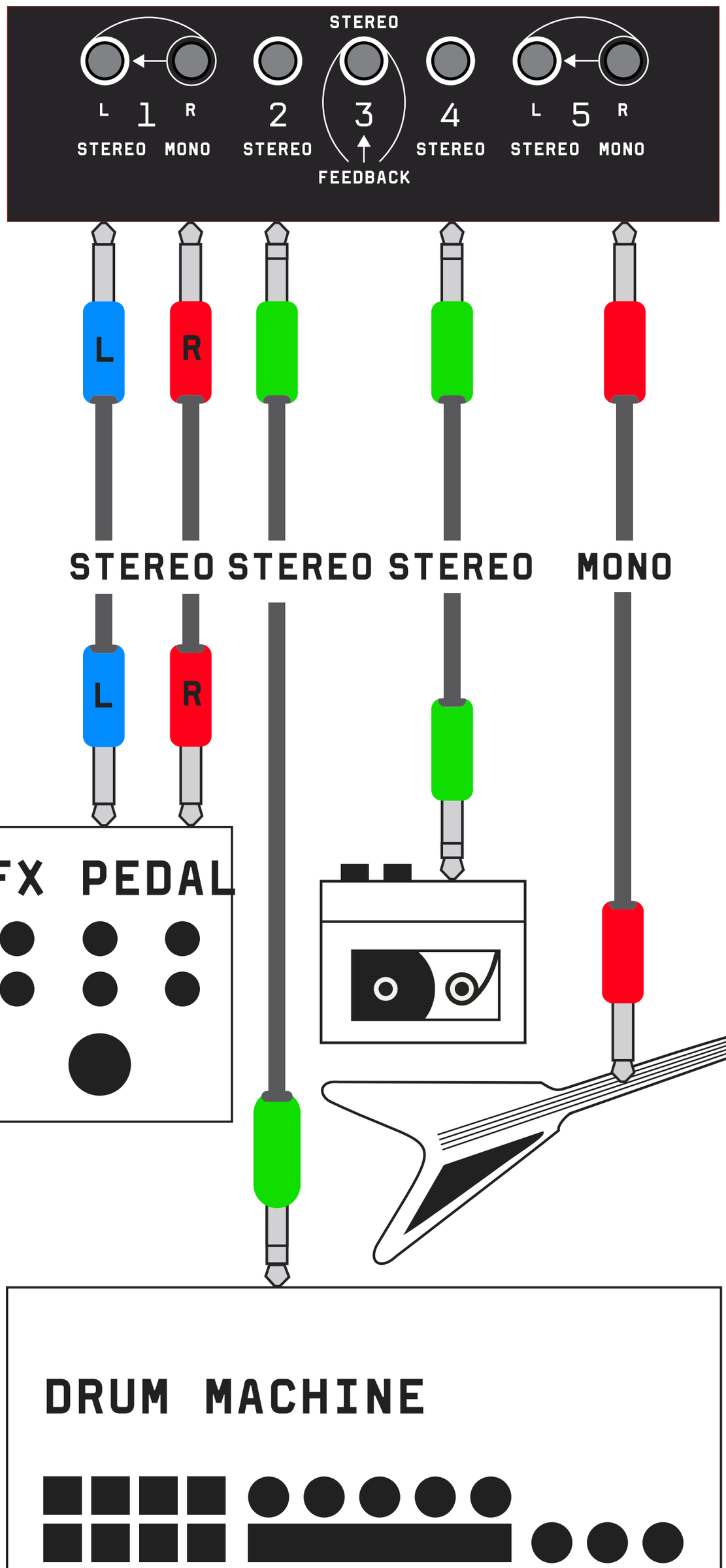
Inputs 2, 3 and 4 are 3.5 mm stereo jack inputs designed for stereo line-level devices.

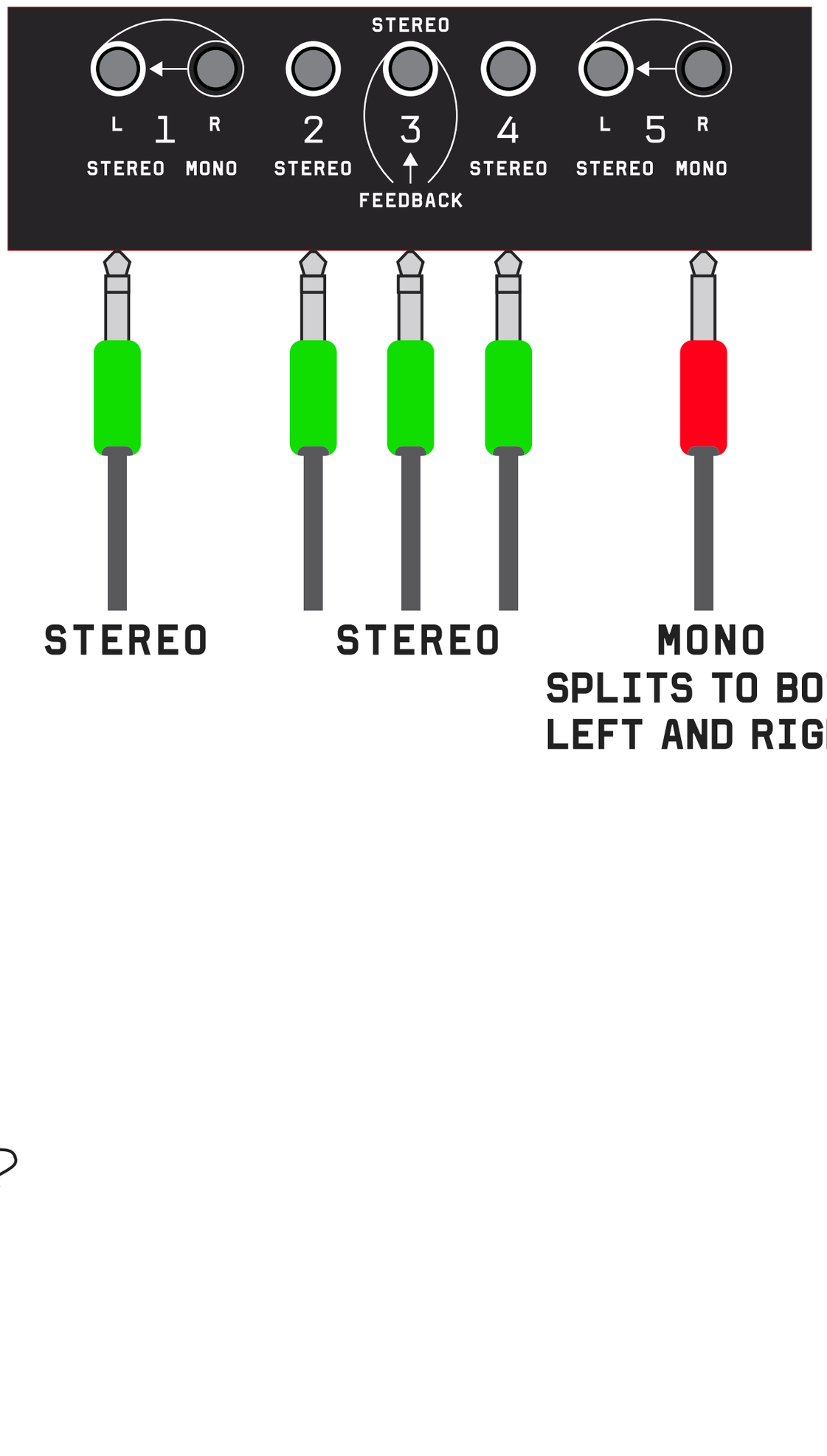
Channels 1 and 5 have flexible routing options:

1. Connect a mono jack to the R input. It will be normalized to the L input and you can hear the same mono signal in both left and right channels.
2. Connect a mono left jack to the L input and a mono right jack to the R input to have a stereo signal via independent connectors.
3. Connect a stereo jack to the L input and to get a stereo signal. It will work the same way as Channels 2, 3 and 4.

All inputs are AC coupled.

EXAMPLES OF CONNECTING DIFFERENT STEREO / MONO SOURCES





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CHANNEL 3 BEHAVES AS IF THERE WAS A CABLE GOING FROM THE OUTPUT TO CHANNEL 3 INPUT. REMOVE THIS FEEDBACK LOOP BY PLUGGING ANY CABLE INTO THE CHANNEL 3 INPUT

C Mute

Press the Mute switches to change the mute state of a channel. When the light is on, it means the channel is active, and the light off means it is disabled. You can also slightly press the button to make it temporarily unmuted.

D Level/Boost

Use the Level knob to set the gain of each input channel. In the 12 o'clock position, the gain is 0 dB (same level as the input); when turned fully clockwise, the gain is +20 dB (10x gain). When the signal is boosted a lot, it will saturate nicely in the NE5532 op-amp. For clean results, mix with the level knobs below 12 o'clock. Boost all signals to make them interact with each other.

E Mix Out

All channels get mixed in the MIX OUT - a line-level output. Use this output to connect to your destination line input.

F Headphones

The dedicated headphone output is suitable for driving a wide range of headphones, including high-impedance headphones. Use the Headphones knob to set the level on the headphones. The headphones knob will also boost the signal level, and can be used as mixdown overdrive.

G Pre/Post mute headphone switch

This switch selects whether the headphone output listens to the mixdown before (PRE) or after (POST) the mute switches. This is useful for listening to all signals on the headphone output while only some (unmuted) are sent to the main output. This could be used to pre-listen to some channels before sending them to the main MIX OUT.

NOTE: When using Channel 3 as a feedback channel (with nothing plugged into the Channel 3 input), and with the headphone switch in the PRE position, the muted Channel 3 level will boost the headphone output, as it mixes in the MIX OUT signal. This can provide an additional overdrive character without feedback. If Channel 3 is unmuted, it will produce normal feedback.

H

The trimmer, accessible with a small flat screwdriver at the right side of Bestie, is there to gain-match the left and right channels. While mixing, a mismatch usually has little effect because the amplitude tolerances are minimal. But when feedbacking Bestie, it can manifest in audible tonal mismatch and distortion differences. This effect can either be used to widen the stereo field (mismatch the gain) or narrow it (tightest possible gain match).

INSIDE HACKING – PLEASE NOTE THAT THE FOLLOWING ACTIONS VOIDS THE WARRANTY!

1&2 Jumpers JP1, JP2, JP3, and JP4

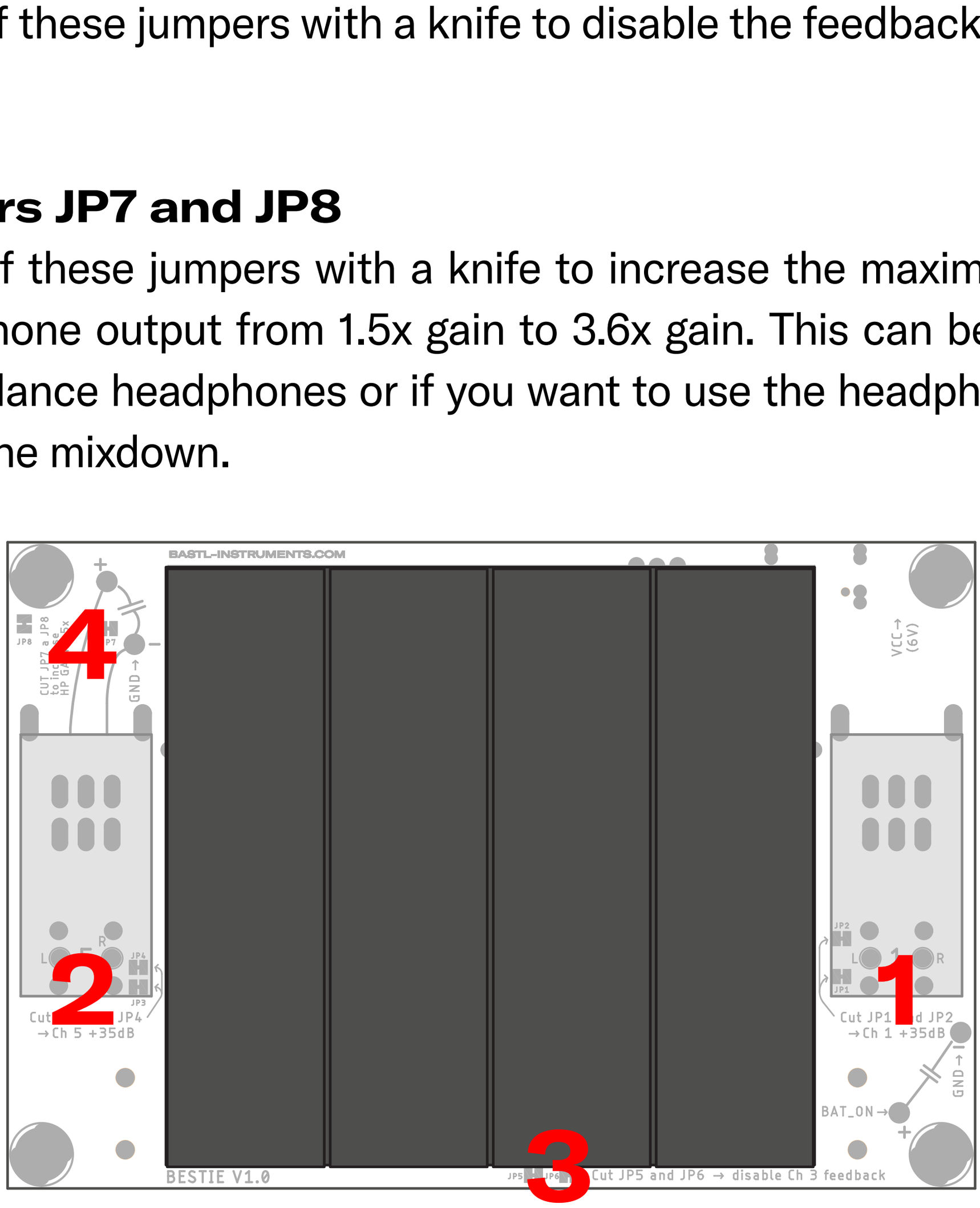
If you take Bestie apart (by removing the knobs, nuts, and screws) and look under the large capacitors on both the left and right sides, you will find a few solder jumpers for both Channel 1 and 5. These can be cut with a knife to increase the channels' gain up to +35dB (55x gain), which could be useful when using pickup microphones or other lower signal devices. The input impedance remains at 22k. These jumpers can be closed again by applying a blob of solder.

3 Jumpers JP5 and JP6

Cut both of these jumpers with a knife to disable the feedback routing for Channel 3.

4 Jumpers JP7 and JP8

Cut both of these jumpers with a knife to increase the maximum gain of the headphone output from 1.5x gain to 3.6x gain. This can be useful for high-impedance headphones or if you want to use the headphone output to distort the mixdown.



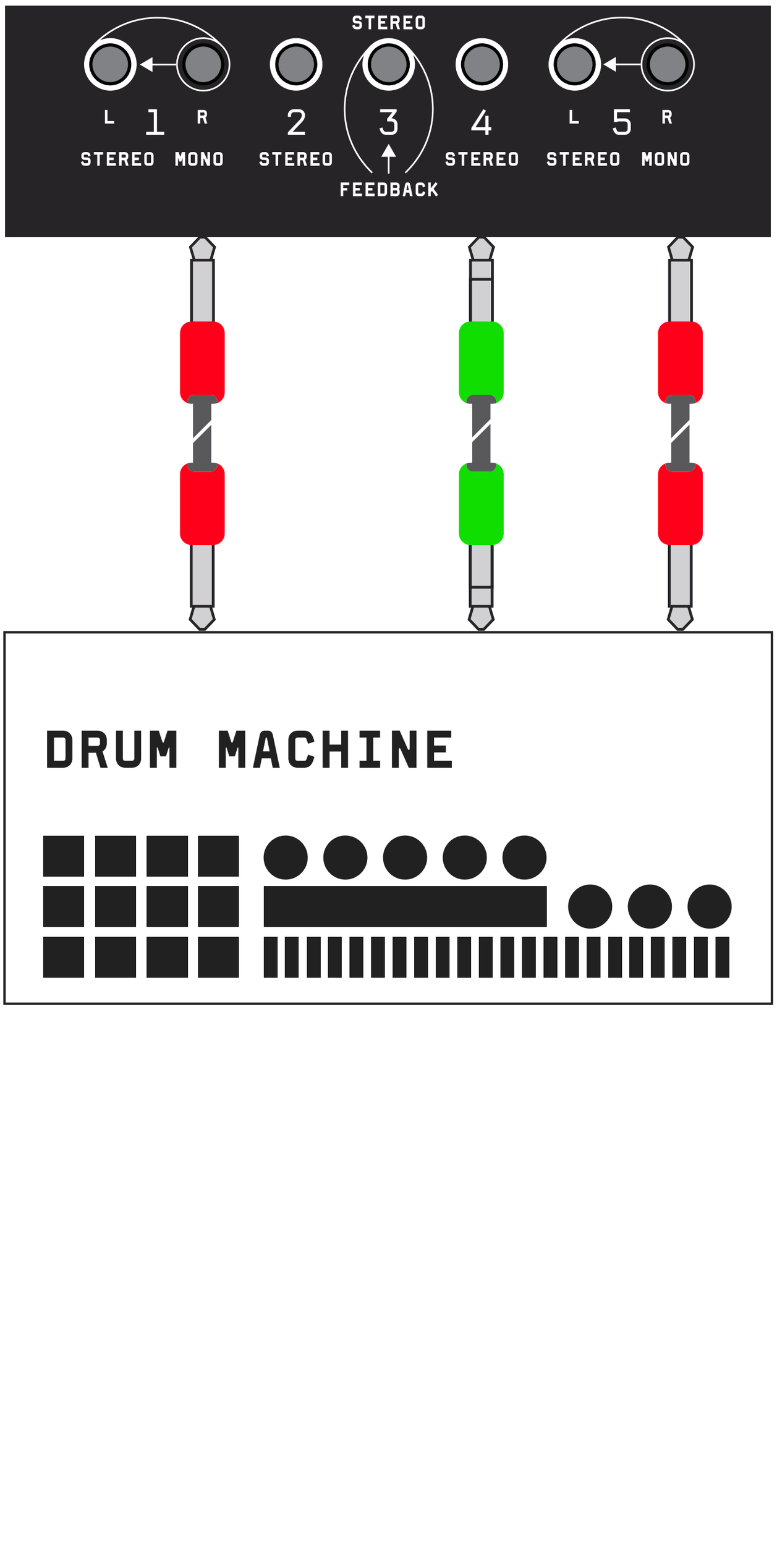
USB noise, what is causing it and how to avoid it

Some USB devices, such as sound cards or mixers, may have separate USB ground and audio ground. On the other hand, other devices, including Bestie, share the ground between USB and audio. When connecting audio and USB ground, you may create ground loops and introduce noise into your system, especially if one or more of the devices is not suitable for this kind of connection (such as the OP-Z, K-Mix, Motu M4, etc.). In this case, it's recommended to power Bestie and the problematic device from separate USB power sources or use the battery power option.

SETUP EXAMPLES

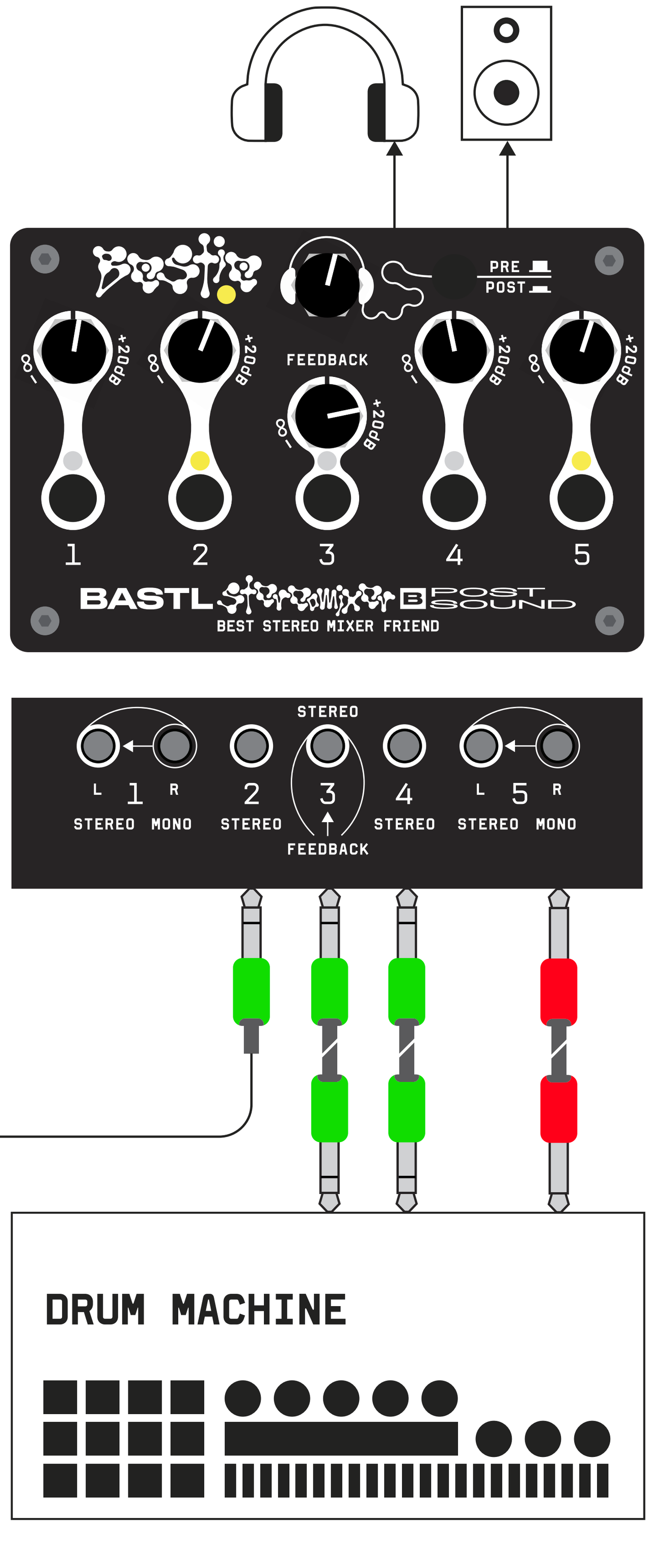
Mixing drums with feedback:

If your drum machine has separate outputs, you may want to consider mixing them externally and adding saturation to enhance their sound. The Bestie's internal feedback channel interacts perfectly with drums. Activate Channel 3 to get more dirt out of your drum machine.



Preview different parts on headphones while muted in the MIX OUT:

When mixing multiple synth or drum parts, you can use the headphone output with the switch in the PRE mute position to pre-listen to all the channels before unmuting them to the speaker system.

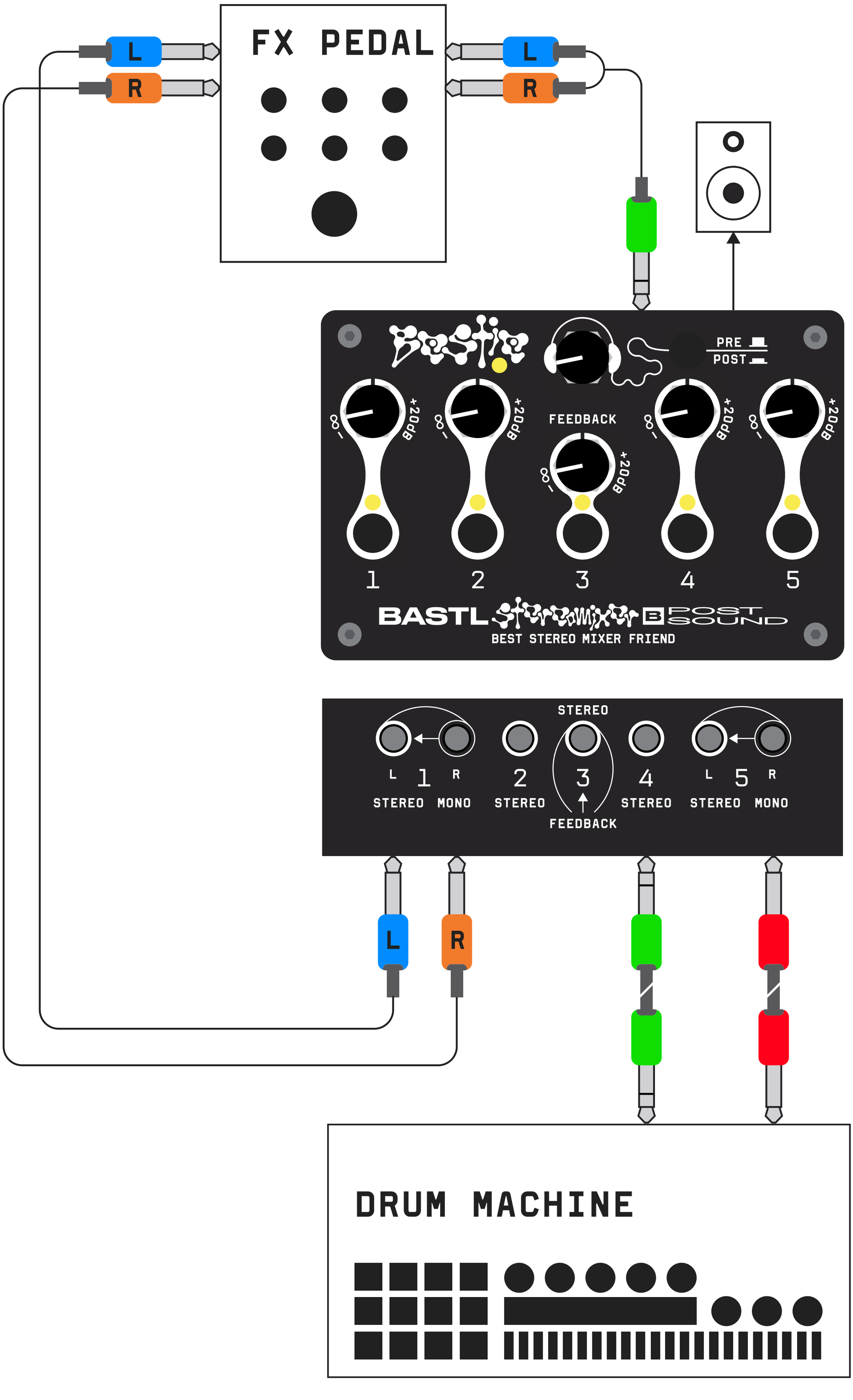


Stereo saturation distortion/feedback after stereo effect:

Stereo saturation is an under-appreciated concept in the hardware domain, as most distortions and saturators are not stereo. For animated distortion sound, use the stereo auto-pan effect before Bestie. Chorus or any other stereo-widening modulated effects will also add subtle yet very elegant complexity.

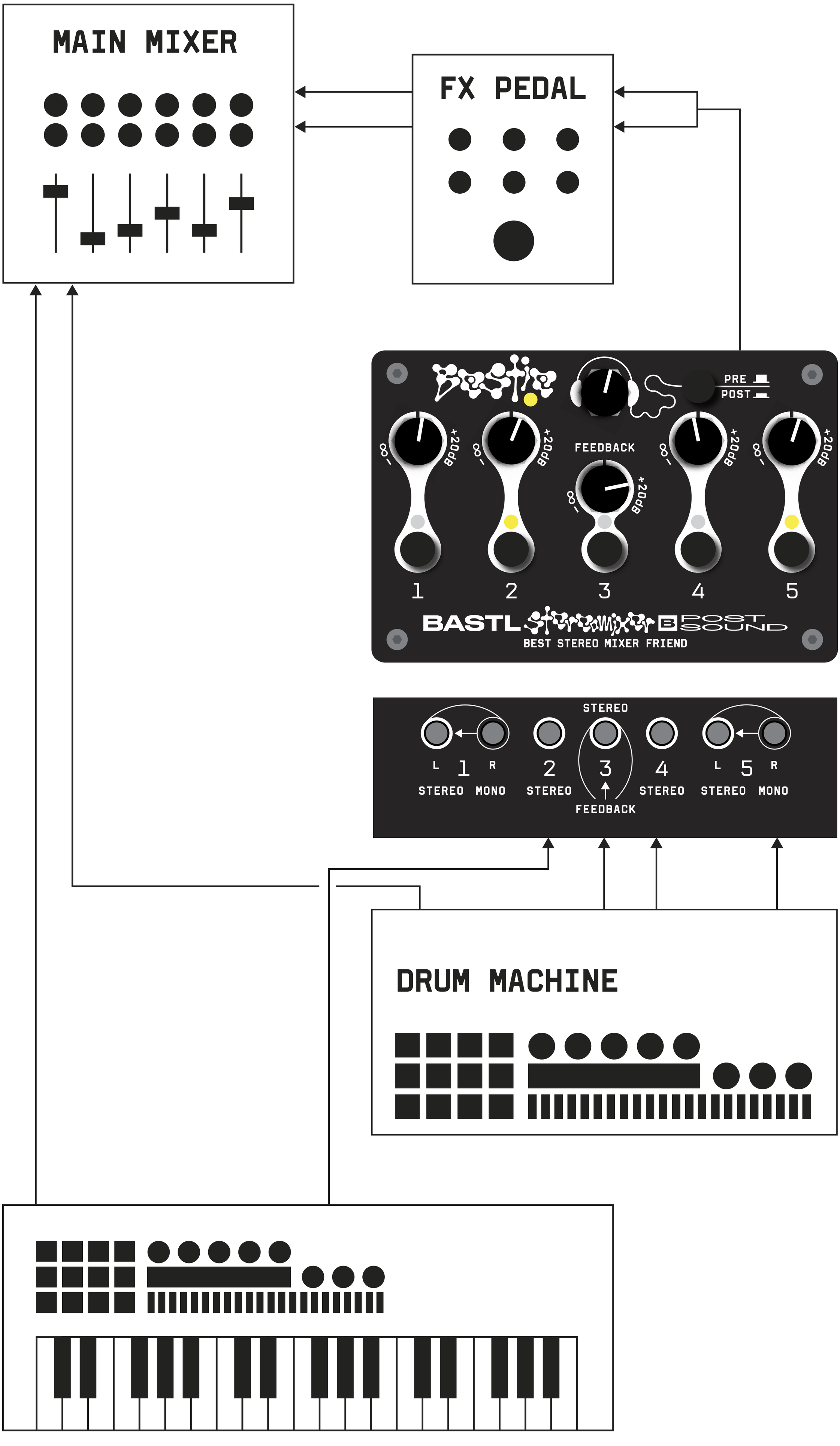
Stereo feedback loop with an effect:

To expand on the feedback channel idea, consider patching the headphones output into a stereo effects box and patching it back to the input. This way, the effect will play a major role in sculpting the feedback tone and behavior. Experiment with options like chorus, auto-pan, delays or even pitch-shifters. Anything in the time domain will work great, but even a simple EQ or filter will go far. Experiment!



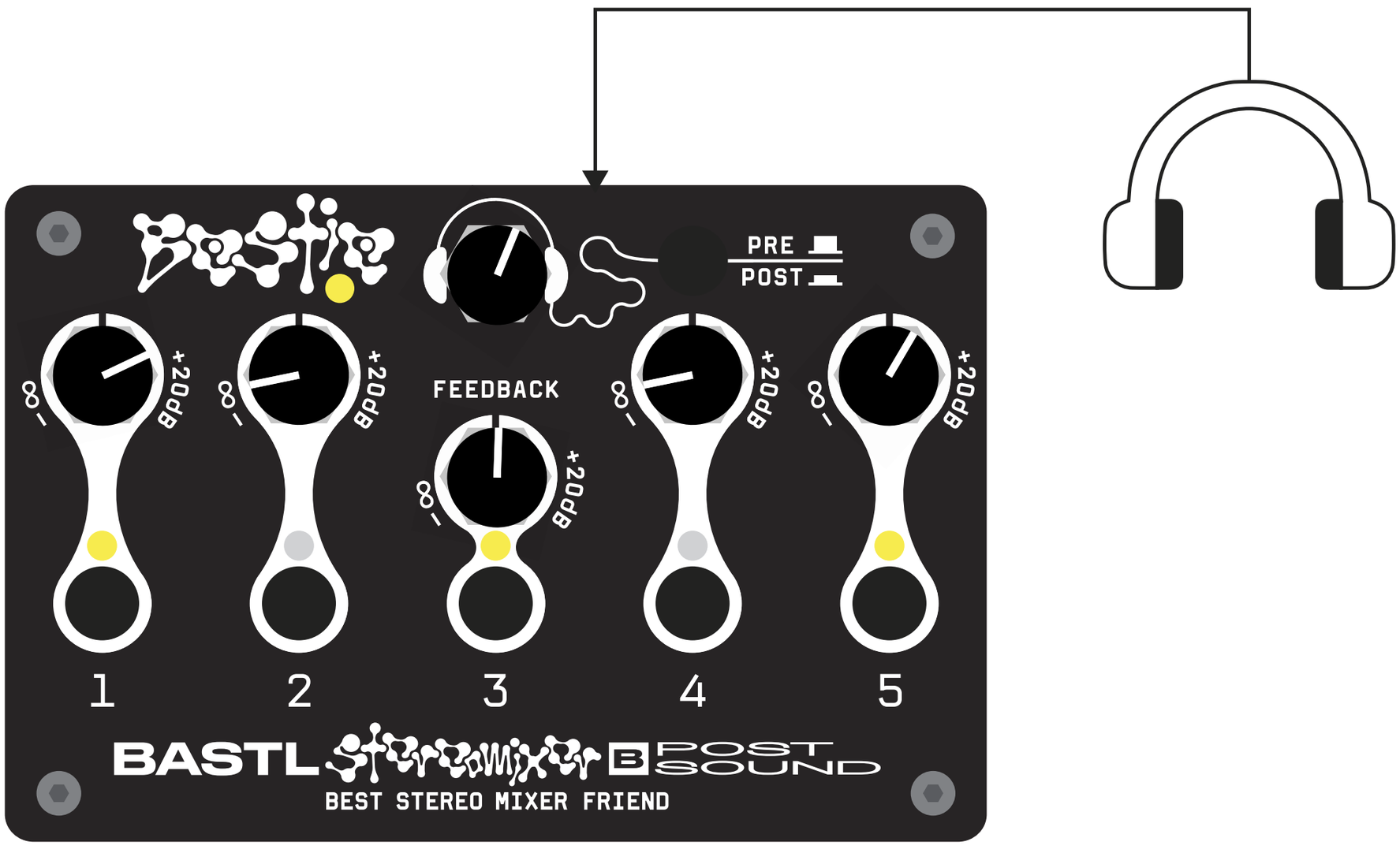
Use Bestie as a performative stereo aux sub-mixer:

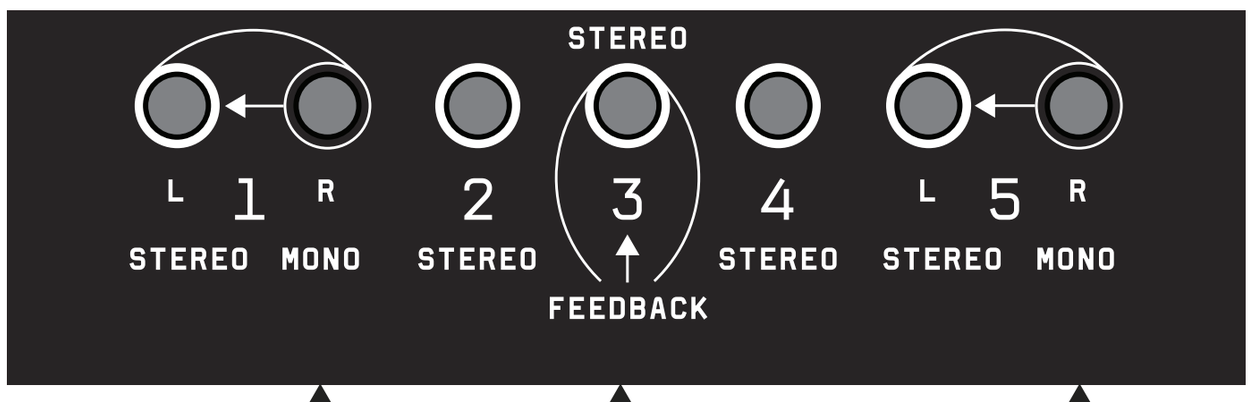
Most analog mixers lack stereo aux sends. If you would like to use a stereo effect with a stereo source, you might want to use Bestie as a simple stereo mixer to mix your effect. It will also be great for performing because you can use the mute switches to toggle the effects on and off.

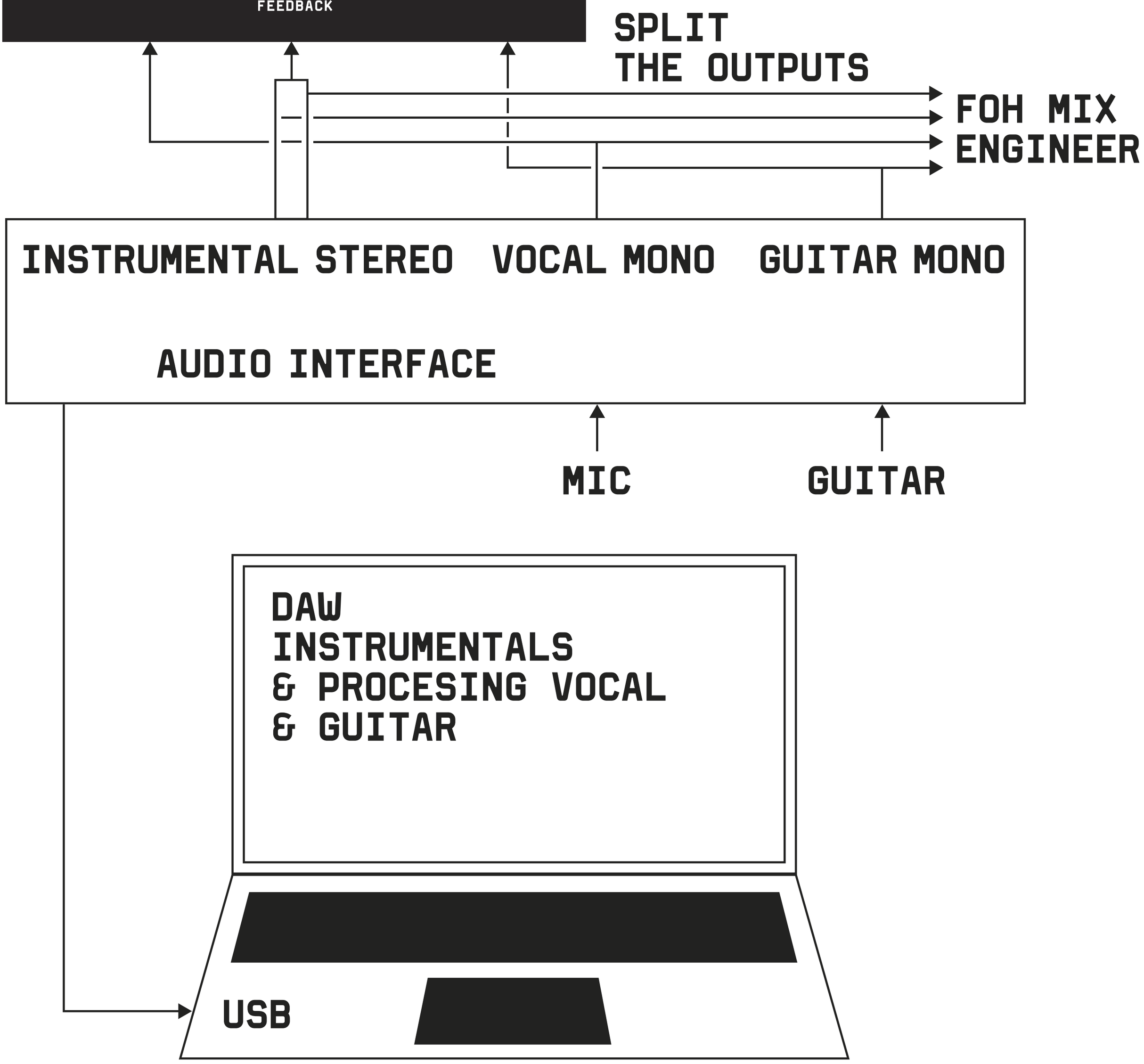


Custom in-ear mixdown for live performance:

If you're preparing for a live performance and require an in-ear monitoring system, but your computer audio interface cannot provide an independent headphone mixdown, you can use Bestie to achieve this. Simply split all channels being sent to the front-of-house mixing engineer and mix them independently using Bestie.







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The idea turned into reality thanks to everyone at Bastl Instruments and thanks to the immense support of our fans.

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