

XEX

row manual

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PERFORM

There are two channels, each controlled by three potentiometers: GAIN (2), RES (3), FREQ (4) and sidechained by CENTER (5). Both channels have the same topology. Inputs •| and |• are fed into each channel's gain stage and then passed to their filters. The input signal level can be adjusted by setting the GAIN which can either attenuate or amplify a signal x20. Note that the amplification affects the filter's behaviour—high GAIN disrupts self-oscillation, conjuring PLL-esque harmonics and other sound design artefacts. FREQ and RES are used to manipulate individual filter's cutoff frequency and resonance. Each channel has a side-mounted switch (6) for selecting low-pass or band-pass filtering. Touch the golden touch pads (1) to manually route the flow of audio and control voltages.

SIDECHAIN – Left channel's (•|, •0) post-gain signal is filtered and fed into an envelope follower. Envelopes polarity and amplitude are adjusted by using CENTER. The adjusted envelope is then mixed in the right (|•, 0•) channel's FREQ parameter. Left half of the CENTER causes the filter to “duck” and the right half produces a gating response. In the middle position, the sidechain effect is inactive.

TOPOLOGIES

FEEDBACK – Connect the •0 and |• sockets with a jack cable and use 0• as the main output. Leave •| unconnected as it's normalised to 0• by default. Alternatively, using stereo cables and a headphone splitter adapter enables the use of •0 as output with dramatic stereo field dynamics.

SERIAL – Connect the audio source to |• and use the •0 as output. Input signals are processed through subsequent channels as •| is normalised to 0•. This mode enables the so-called twin peak and auto-filtering.

PARALLEL – Connect a stereo audio source into •| or two mono sources to •| and |•. Left and right signals are split into separate channels, processed and output as stereo signal via •0 or as mono on both outputs.

I/O

The 5-pin header (7) is used for interfacing with external devices. The pins are connected to the right channel output (0•), envelope output (–), left FREQ (•/), right FREQ (/•) and GND (–). Tip: Connect different pins with jumper wires. For example, connecting •/ to /• makes both FREQ interrelated.

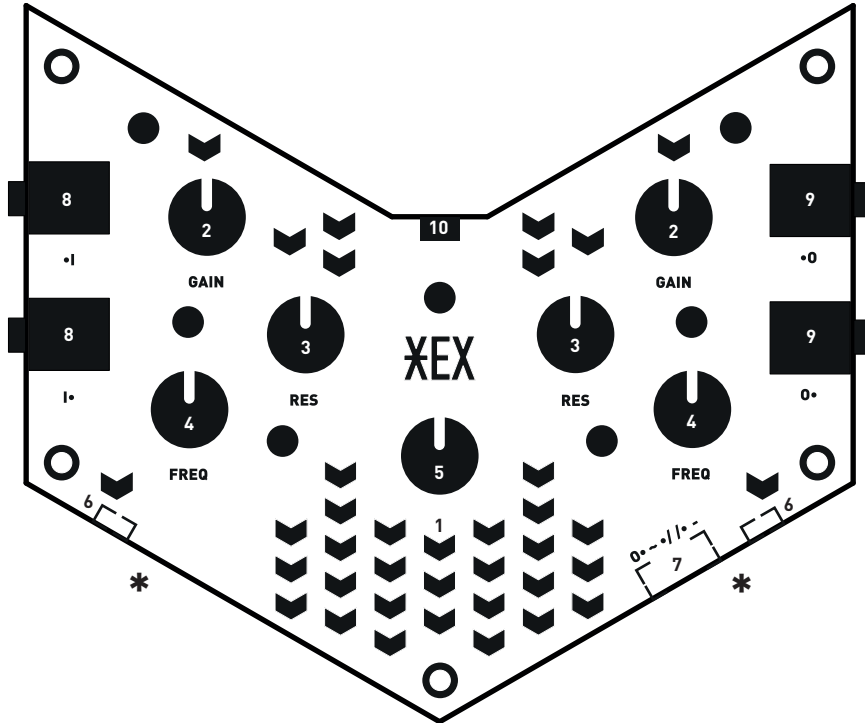
POWER

HEX can be powered via the USB-C socket (10) using a USB power adapter/power bank.

HACK

Detach the wooden base to access the bottom side of the PCB.

- Removing the ceramic capacitor (located below left RES) disables the envelope follower's low-pass filter (by default it only reacts to bass). Replacing it with a different value modifies the cut-off frequency (RC filter consists of 1k and 1uF).
- 0 ohm resistors (next to the switches) can be resoldered to the neighbouring HP pad to substitute the filters' switch-selectable mode from band-pass to high-pass.



FEATURES

1. Touch pads | 2. Gain | 3. Resonance | 4. Frequency | 5. Sidechain |
6. Mode switch | 7. Header pins | 8. Input | 9. Output | 10. USB-C power port |

Put HEX next to a wall, mark dots where the * show. Hammer 2 nails into the marked spots and voila, you've built yourself an improvised HEX mount.

COMPONENTS

1. 4,7uF capacitor / 5x
2. 10uF capacitor / 2x
3. Header pins / 1x
4. 3.5mm jack / 4x
5. Potentiometers + knobs / 7x
6. Nuts + bolts / 5x
7. PCB + wooden base / 1x

ASSEMBLE

You will need a soldering iron, solder, pliers, tweezers and some patience. Before you begin the process, make sure you are working on a clean, well-lit surface. Be careful with the components, some of them are very small—take them out of the packaging one at a time, when needed. Most of the tiny SMD components are marked with numbers that match the numbers printed on the PCB. If you are new to soldering (SMD), we recommend watching some online tutorials beforehand. For the assembly video, visit our website. In any case, take it slow, go step by step and enjoy the process of building your HEX. It's like a puzzle that you can use and play with afterwards. Oh, and if you have any questions, do not hesitate to contact us. Have fun!

- Solder the 4,7uF capacitor / 5x *
- Solder the 10uF capacitor / 2x *
- Solder the 5 pin header on the bottom of the PCB / 1x (align to indent on the wooden base)
- Solder 3.5mm jack / 4x
- Solder potentiometers / 7x (don't put the knobs on until you are finished)
- When finished soldering, check if all of the solders are well connected to the components.
- Clip off the excess steel leads on the bottom side and see if it fits the wooden base.
- Insert the bolts through the PCB and base, then tighten the nuts.
- Set potentiometers to central position and attach the knobs.

* For the correct alignment observe the printed graphics on the PCB.

TUNE

Turn all GAIN & FREQ to min., CENTER to middle and RES to max. Adjust the trimmer potentiometers ⊕ on the bottom of PCB (above the switches) to set the filters to the desired min. cut-off frequency (sub-audio recommended).

DISCLAIMER and WARNINGS

1. Read these instructions. 2. Keep these instructions. 3. Heed all warnings. 4. Follow all instructions. 5. Do not use this apparatus near water. 6. Clean only with dry cloth. 7. Install in accordance with the manufacturer's instructions. 8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. 9. Touch pads on the instrument are able to output a low current, therefore the device is unsuitable for individuals with implantable cardioverter-defibrillators (ICD), pacemakers, heart diseases and small children. 11. Power the device only using 5-volt USB C power adapters and cables. 12. Protect the power cable from being walked on or pinched particularly at plugs and connectors at the point where they exit from the device. 13. When interfacing with other devices, follow the manual and check external devices input and output voltage (CV and audio signals). 14. Unplug this device during lightning storms or when unused for long periods of time. 15. When replacing parts, disconnect the device from power sources and unplug all attached cables. Contact the manufacturer for information about recommended substitute part selection. When repairs are undertaken by anyone but the manufacturer, the latter is absolved of all responsibilities. 16. Correct disposal of this product: this product must not be disposed of with household waste, according to the WEEE Directive (2012/19/EU) and your national law. This product should be taken to a collection centre licensed for the recycling of waste electrical and electronic equipment (WEEE). The mishandling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with WEEE. At the same time, your cooperation in the correct disposal of this product will contribute to the efficient use of natural resources. For more information about where you can take your waste equipment for recycling, please contact your local city office, or your household waste collection service. 17. Do not place naked flame sources, such as lighted candles, on the device. 18. This apparatus may be used in tropical and moderate climates up to 45°C. 19. Children must use this product under adult supervision.

HEX row is an analogue dual resonant filter with versatile routing capabilities, sidechain/envelope follower and mischievous character, stemming from (mis)use of transistors as variable resistors in the signal route.

