

Farb Highpass

Making Sound Machines

Farb Highpass

Farb Highpass is an analog transistor ladder highpass filter for Eurorack. It features a CV controlled cutoff and resonance, and a Tilt EQ as a frequency bias stage.

The Tilt EQ lets you quickly adjust the overall character of the module. You can either bring some of the warmth back in, or double down on the highpass effect and go all sizzly.

This module expands on the rich sound of a classic East Coast highpass ladder filter, adding flexibility and fine control with its weighted input stage.

It is part of our Farbfiter (colour filter) range of sound colouring modules, offering a wide sonic palette from lending glowing warmth to electric sizzle in 4HP.

Installation

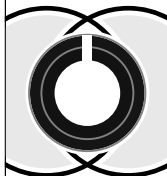
Farb Highpass requires a -12V /+12V Eurorack power supply. Connect the 2x5 pin header on the back to the bus board of your Eurorack case using the included ribbon cable. The red stripe on the ribbon cable needs to match the Red Stripe mark on both Farb Highpass and bus board.

Power consumption: +12V 85 mA / -12V 50 mA

Find an expanded online version of this manual under makingsoundmachines.com/farbhigpass/manual/

Instructions for building the DIY version of this module makingsoundmachines.com/farbhigpass/build/

Farb Highpass
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LOW CUT



RESO



CUT

RESO



IN

OUT



Tilt EQ

Turn the topmost knob to set the frequency bias of the module. This Tilt EQ will give you extra flexibility and fine control in shaping the signal's frequency spectrum. A setting at 12 o'clock is neutral and will give you the classic sound of a ladder highpass filter.

Turn the knob counterclockwise to gradually add warmth by emphasizing the bass frequencies, giving the highpassed signal a thick and round sound. Turn the knob clockwise to gradually add brightness, boosting the treble frequencies. This will emphasize the highpass, giving the signal a sizzling character.

Cutoff

Turn the Cutoff frequency knob to sweep from a neutral to a bright timbre. With the knob set fully counterclockwise, all frequencies pass through the filter, resulting in a warm, neutral sound. All the way clockwise, only the highest overtones remain.

Cutoff CV

Cutoff comes with a CV input (top left jack). If a signal is present here, the Cutoff potentiometer becomes an offset for the incoming CV. The input accepts a 10V range: 0V - 10V when the knob is set all the way counterclockwise, -10V - 0V when set fully clockwise.

The blue trim potentiometer sandwiched between front panel and circuit board lets you calibrate the combined voltage range of knob and CV.

Resonance

Turn the Resonance knob to increase the intensity of the emphasis at the cutoff frequency. With the knob set fully counterclockwise, Resonance is off.

Starting at about 9 o'clock, you will notice an increasing emphasis at the cutoff frequency. With the knob set to about 2 o'clock, the filter will begin to self resonate.

Resonance CV

Resonance comes with a CV input (top right jack), a feature not commonly present on transistor ladder filters, allowing for new modulation capabilities in this context.

If a signal is present here, the Resonance potentiometer becomes an input attenuator. Patch an envelope or LFO into this input to produce vividly animated timbre changes. The Resonance input accepts a 0V - 10V range.

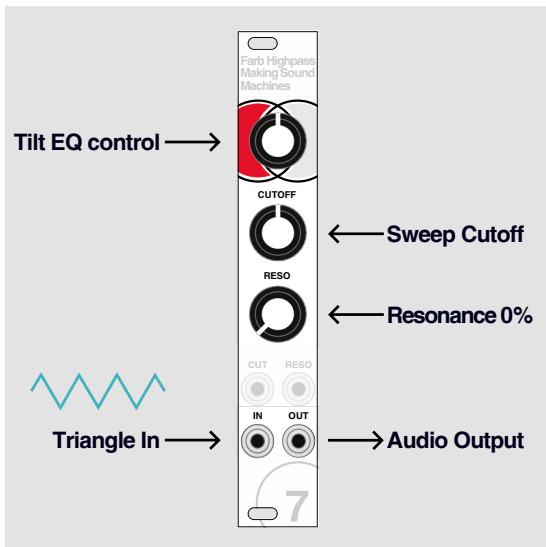
Audio In + Out

Patch an audio signal into the Audio In (bottom left). The Audio input expects a -5V /+5V range. The Audio Out jack provides the processed output signal.

To get the most out of your filter, we encourage you to experiment with the level of the input signal. A slightly attenuated input can result in a cleaner output, a boosted input in a dirty and distorted sound. To make up gain on the output, use a simple boost module like our Tausend dB.

Getting started

Set Tilt to 12 o'clock, and Cutoff and turn Resonance down (fully counterclockwise). Patch a triangle oscillator at around C2 (65.4 Hz) into the Audio In.



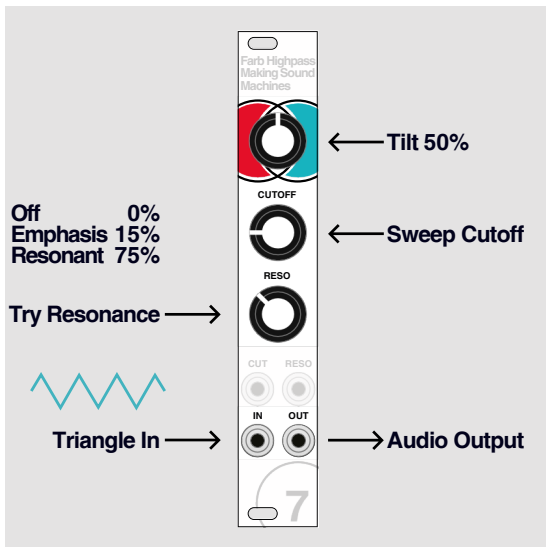
Sweep the Cutoff. At this setting, you should get a typical filter sweep for a transistor ladder highpass filter.

Adjust the Tilt knob to get a feeling for the way frequency bias influences the signal. Turn the knob counterclockwise to gradually add warmth by boosting the bass frequencies, giving the highpassed signal a thick and round sound.

Turn the knob clockwise to add brightness, emphasizing the treble, thus giving the signal a shiny sizzling character.

Set the Tilt knob to 12 o'clock, and turn Cutoff down (fully counterclockwise). Bring in Resonance at about 12 o'clock and sweep the Cutoff.

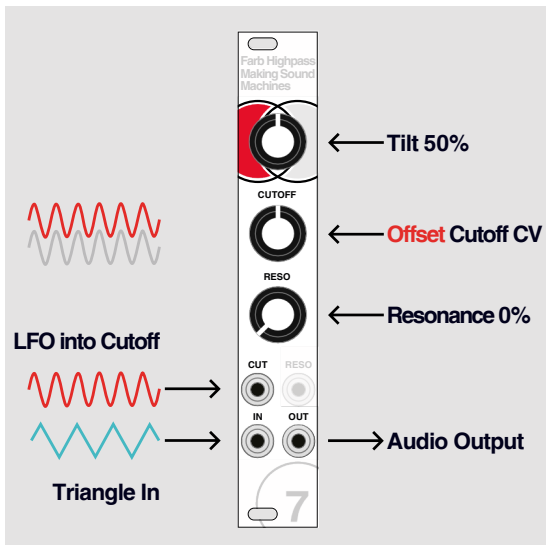
You will start to notice an emphasis around the cutoff frequency, a staple of subtractive synthesis.



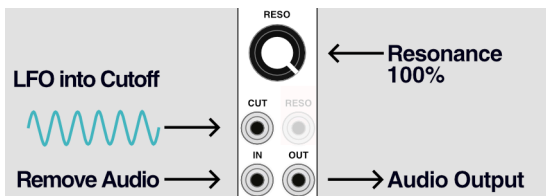
Adjust the Resonance knob and sweep the cutoff to get a feeling for the way Resonance changes the filter response. At 12 o'clock you get a noticeable emphasis around the cutoff frequency.

Starting at 2 o'clock, the circuit will start to self-resonate. At 3 o'clock, the circuit will fully ring and start to suppress the input signal, resulting in a changing overtone structure of the filter. Above 3 o'clock, the resonance will overdrive, sounding brittle and unstable.

Patch an LFO into Cutoff CV. The Cutoff knob will act as an offset. The knob sets a baseline for the modulation, with the CV from the Cutoff input added on top.



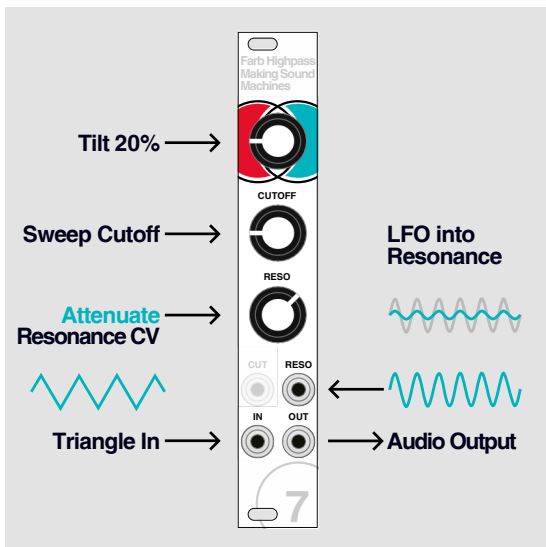
This is a great point to patch a synth voice's envelope to alter the timbre alongside the shape of the amplitude.



Turn the Resonance knob all the way up. Remove the signal patched to the input and you can play the resonance only. Adjust the Tilt knob to adjust the timbre.

Unpatch Cutoff CV, patch the triangle oscillator back into Audio In. Set Tilt and Cutoff to 9 o'clock.

Feed a slow LFO into Resonance CV. You can scale the incoming CV by adjusting the Resonance knob.

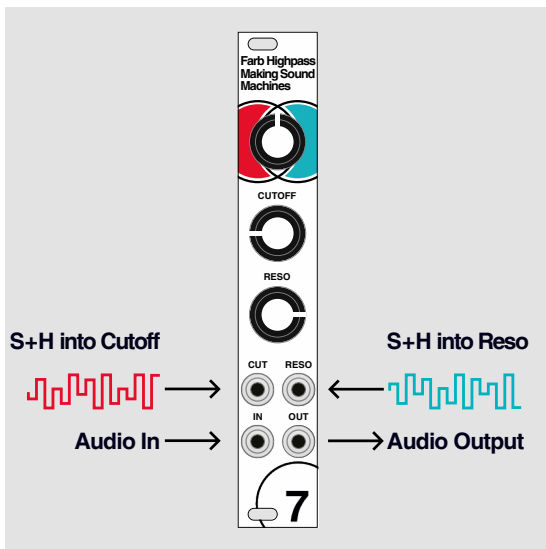


Try various modulation shapes and speeds, anything including audio rate modulation leads to great results and can be flexibly dialled in using the knobs.

Experiment by sweeping Cutoff, try with different Tilt settings. Note how you can emphasize or attenuate the resonance, giving the signal a warm or bright character.

Try different waveforms as Audio signal. For waveforms with hard edges (Sawtooth and Pulse), some residual high frequency signal will remain even with the Cutoff set to 100%.

Finally patch a Sample and Hold into Cutoff and Resonance at the same time. You will get lively, constantly evolving timbres. If you own two Farb Highpass modules, or double track the same signal with a recording setup, this will make for a smashing stereo effect.



Explore

We hope this short tutorial section has inspired you to start experimenting with your own settings and sonic material. Acoustic sounds and drum loops are equally fascinating jumping off points to process with this module.

Enjoy Farb Highpassing - and if you make something you like, do not hesitate to share the results!

The **Farbfilter** Series

Our Farbfilter (colour filter) series is a range of sound colouring modules for Eurorack. Designed to fit a 4HP footprint, they are compact, tweakable and easy to use.

These modules are our personal take on our favourite analog effects circuits from East and West Coast Modular Synthesis.

Farbfilter

Farbfilter is a classic analog transistor ladder lowpass filter for Eurorack. It is a staple of subtractive synthesis and famous for its rich warm sound. We enhanced its palette with a colourful drive and CV controlled resonance.

Farbfolder

Farbfolder is an analog wavefolder for Eurorack. It does this weird and wonderful trick of folding up the wave at the zero points, "squaring" a sine off with more and more sinusoid edges, thus adding odd harmonics.

Farbshaper

Farbshaper is based on a shaper circuit that turns a ramp into a sine, and was historically used in function generators and oscillators. On any other signal it will add one or multiple wave folds. The circuit produces opposite offsets internally, so the knob settings interact strongly and are fun to automate with CV.