Farbshaper

Making Sound Machines

Farbshaper

Farbshaper is a classic West Coast analog waveshaper for Eurorack, designed to shape the overtones of an audio signal with two voltage controlled stages.

It is based on a shaper circuit that turns a ramp into a sine, and was historically used in function generators. On any other signal it will add one or multiple wave folds.

This module is excellent to use as a non-linear shaper for acoustic and electronic sounds, ranging from mild timbral transformation to colourful wavefolding.

It is part of our Farbfilter (colour filter) range of sound colouring modules, offering a wide sonic palette from lending subtle colour to rich timbre bending tones in 4HP.

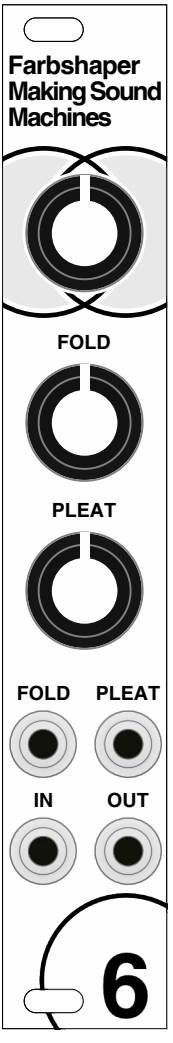
Installation

Farbshaper 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 Farbshaper and bus board.

Power consumption: +12V 72 mA / -12V 15 mA

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

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



Gain

The topmost knob on the module is a simple input gain circuit. Turning the knob fully clockwise will pass the full amplitude into the waveshaper. Setting it fully counterclockwise will turn off the Audio Input.

The waveshaping circuit interacts strongly with the incoming volume of the audio signal you want to affect. Experiment with the input gain as well as Fold and Pleat to fine-tune Farbshaper's processing.

Feed the Audio In from a VCA module, then attenuate with the Gain knob, if you need CV control over this parameter.

Fold

Turn the Fold knob to add a single fold to the incoming signal. The more you turn the knob clockwise, the more pronounced the effect becomes, adding a bright timbre to the signal.

With Pleat turned down, explore combinations of input Gain and Fold, and how they interact.

Fold CV

Fold comes with a CV input (top left jack). If a signal is present here, the Fold knob becomes an input attenuator. Patch an envelope or LFO to this input to produce vividly animated timbre changes. The Fold input accepts a 0 - 10V range.

Pleat

Turn the Pleat knob to add the second waveshaping stage to the incoming signal. This stage adds multiple additional folds. It strongly interacts with the signal from the Fold stage.

It produces different results depending on the internal offset and timbre passed on from the stage before it.

The more you turn the knob clockwise, the more additional overtones are produced, again adding a brightness to the incoming signal. Explore the interaction of different settings on each of the 3 knobs.

Pleat CV

Pleat comes with a CV input (top right jack). If a signal is present here, the Pleat knob becomes an input attenuator. Patch an envelope or LFO to this input to produce vividly animated timbre changes. The Fold input accepts a 0 - 10V range.

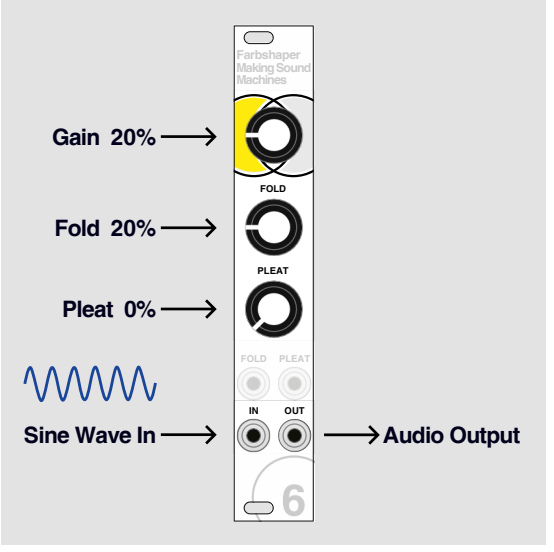
Modulation of Fold and Pleat CV, and attenuating each of them differently, leads to varied timbral results.

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.

Getting started

Set Gain and Fold to 9 o'clock, and turn Pleat down. Patch a sine oscillator at around C2 (65.4 Hz) into the Audio In.



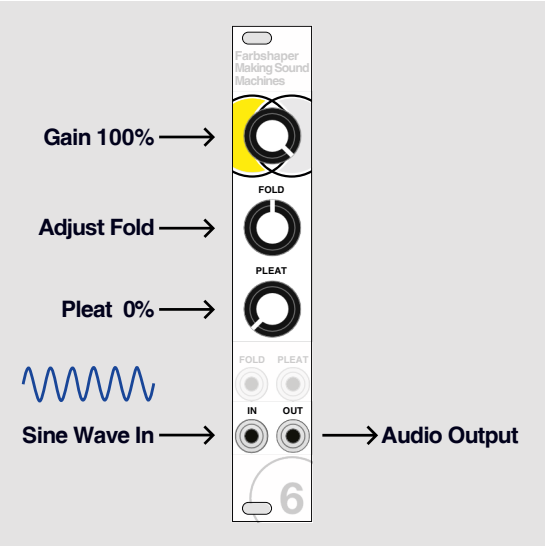
Sweep Gain clockwise. You will notice a short clean onset, then a steep increase in overtones resulting in a brassy tone. There is a plateau towards the end of the range.

Even without changing the Fold knob, the timbre changes substantially with the amount of gain you set at the input.

This is a helpful realisation if you want to process sounds with an amplitude envelope. Similar to a lowpass gate, a volume change in the incoming sound will automatically animate the timbre as well.

Set Gain to full and sweep the Fold knob. This will progressively increase the folding effect, adding overtones.

The higher you set the Fold knob, the quicker the sound will fade away if you dial the Gain knob counterclockwise.

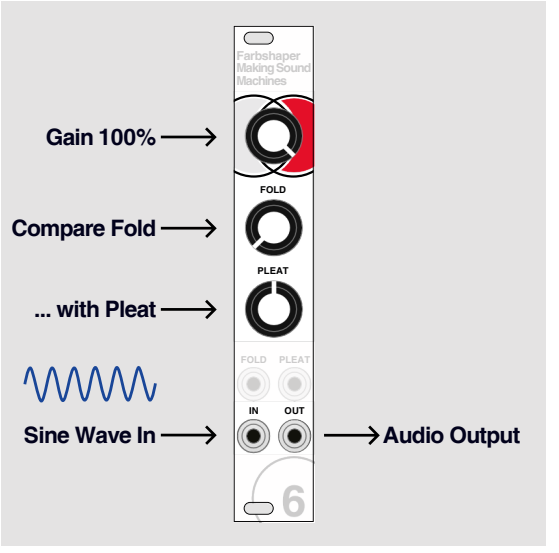


This means that on sounds with a volume envelope, you will not only affect the timbre to make them brighter or more muted, but also make them snappier depending on the settings you chose on Farbshaper.

On a sinusoid signal like a simple drum tone, you can achieve an interesting interplay between bright sounds with a snappy envelope, and a more muted tone with longer decay by tweaking Gain and Fold.

With Gain set to full and Fold turned down, experiment with giving Pleat a full sweep and back, then Fold after that.

Notice the difference in character, with the Pleat circuit sounding brighter and the Fold circuit more gentle.

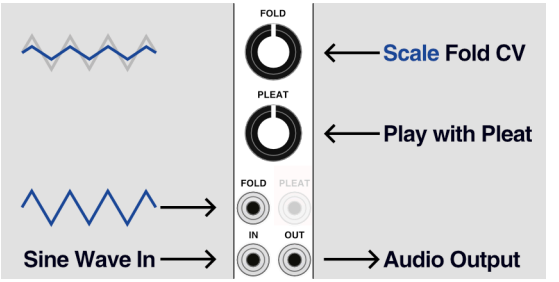


You will find a similar link between Gain and Pleat as you explored with Gain and Fold.

This means that for the amplitude-timbre interaction as described before, you have two different shaping circuits to choose from, which you can mix and match.

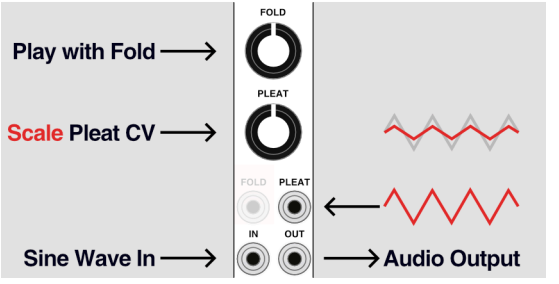
Take some time to experiment and explore how the Pleat, Fold and Gain parameters interact.

Patch an LFO into Fold CV. Scale the LFO range using the Fold knob - all the way counterclockwise, you will hear no modulation. With Fold at around 9 o'clock, the circuit will produce a pronounced double articulation, creating an interesting brassy sound.



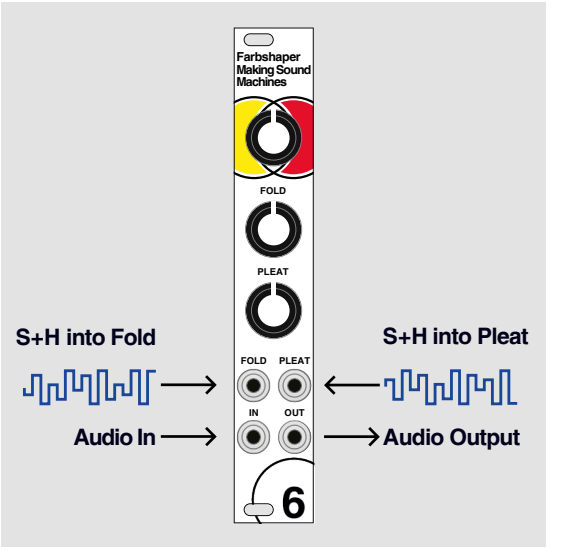
Feed an LFO into Pleat CV. Scale the LFO range using the Pleat knob. Experiment with Gain and Fold, and how these parameters interact.

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



Fold and Pleat CV are great patch points for a synth voice's envelope, shaping the timbre alongside the amplitude.

Finally patch a Sample and Hold into Fold CV and Pleat CV at the same time. You will get lively, constantly evolving timbres. If you own two Farbshaper 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 an equally fascinating jumping off point to process with this module.

Enjoy Farbshaping - 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.

Farb Highpass

Farb Highpass is an analog transistor ladder highpass filter. We tweaked the circuit and added CV control over resonance, as well as a Tilt EQ. It lets you either bring some of the warmth back in, or double down on the highpass effect and go all sizzly.