Eternal spring filter

take advantage of the instability!

The *Eternal spring filter* is quite different than most filters we've tried. It belongs to that category of sound modifiers which are usually called "effects", which is to say that it doesn't just filter the sound in a regular manner, but also adds a considerable amount of edge/personality. At time it sounds like a wavefolder, and when you plug a nice slow LFO into the CV input, you can really get some intense sounds out of it.

At lower drive settings, this filter adds noise, grit and harmonics, while at higher settings the sound of the filter takes over and replaces your input with sparks and sludge. It sounds great on synth leads, on basslines, and really adds a lot of movement to drones. It is a weird beast which capable of some different sounds than other filters in your system. On top of all of that, this filter is not temperature compensated and has plenty of musical instability. The cutoff and Q move around nicely to add energy to your incoming audio.

Features

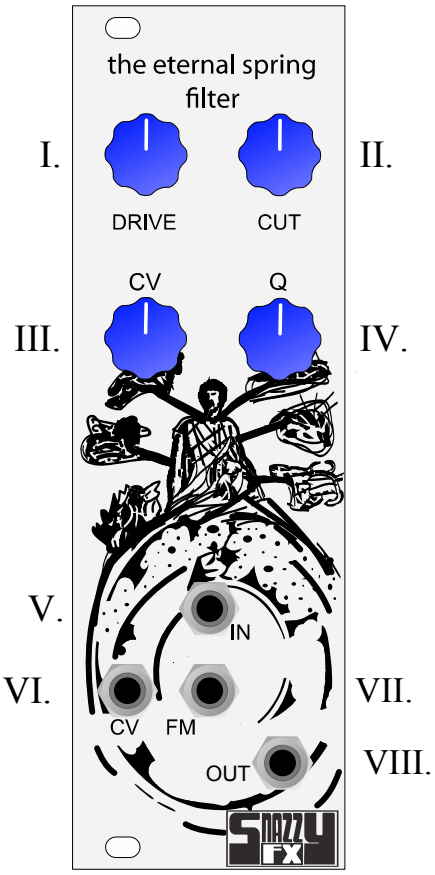
- Drive control for adding soft saturation and harmonics
- CV input with depth control
- FM input with inverted response for wild audio rate modulation
- Playable Q knob
- Unique waveshaping capabilities
- Self-oscillation that mixes nicely with the incoming signal and doesn't squeal
- No temperature compensation/simple expo translates into a signal that constantly "moves"
- Multiple gain stages act as a natural limiter
- Ability to turn your sines and triangles into intense acidic basslines

Width 8HP
Current draw 11mA

Front panel

I. Drive amount
II. Cutoff frequency
III. CV depth for cutoff
IV. Resonance (Q)

V. Audio input
VI. CV input
VII. FM input
VIII. Audio output



Controls and operation

DRIVE

This control determines the amount of harmonics and dirt the eternal spring adds to the incoming signal. Note: there is no clean setting on this filter! All signals coming into the filter will exhibit some degree of saturation or waveshaping. At lower drive settings, the resonance will have more movement, and there will be fewer harmonics on low harmonic signals like sine or triangle waves. At high drive settings, the incoming signal is completely trashed, but without any harsh high frequency content. In a very real sense, high drive settings make the output softer.

An interesting feature of this filter is that at some settings of this knob with the right input and Q, you can actually hear the filter starting to create chaotic noise. It's a subtle effect and you might not even notice it, unless you are looking for it. Suffice to say, this filter is capable of modifying your incoming audio in some very unique ways.

CUT

This knob works like a regular filter cutoff knob. The CV and the cutoff controls both effect the cutoff of the filter.

CV depth

Determines how hard the incoming CV from the CV input effects the cutoff of the filter (or when used with audio rate modulation, how intense the spectral modulation is). When set at 10, the knob will guarantee that 5V signals can open up the cutoff of the filter (if filter cutoff is set low). Try placing a 5v trigger signal into the CV input to ping the filter when at high Q.

Q

This Q or resonance control works a bit differently than many other filters. Most importantly, even when maxed out, the eternal spring filter never squeals. Self oscillation is voiced to mix with the incoming signal in such a way as to stay at reasonable volumes. Even though its self oscillation is not super loud, this filter has tons of resonance.

At times, the Eternal spring can sound like a wavefolder, at other times it can sound like a bandpass filter. In other words, it's a weird filter. When it was being designed, we were looking for a filter with a unique voice. We also wanted the Q to add to the sound of the filter but never to take away from the musicality of it. Therefore, you don't have to be afraid to max out the Q. The Eternal spring self oscillates extremely easily, but when driven with a VCO, this is barely noticeable at high drive levels.

Notes on usage

If you are using the eternal spring with signals that are not constant (say a hi hat or a mixed audio signal), we recommend you use the Eternal spring before your VCA, not after. This will allow you to take advantage of the way the Q increases harmonic content and saturation, but will keep the self-oscillation from creating a tone in between your drum hits. (This makes much more sense when you try it out than on paper!!) Or simply bring the Q to non self-oscillating levels (this is the Q knob almost off on the Eternal spring but this is slightly interactive with the drive knob)

To sum it up, this filter is different than many other filters, and it rewards experimentation. If you are using it with drones or using it before a VCA, it can sound extremely dramatic. Used with other content, it can sound extremely strange and trashy. We'd like to stress the importance of meeting it on its own terms and not expecting it to behave like some other filters. But most of all – have fun with it and enjoy its edgy acidic tone!

IN

This input is capable of a lot of gain, so you can plug signals into the filter just to boost them. Be aware that it is not a linear boost, so you will not end up with a clean loud version of your input. (It acts more like a fuzz pedal version of your input.) The input jack is AC coupled, then goes into the drive section.

CV IN

This is an exponential CV input (though not trimmed to 1/V Oct), which goes through an attenuator. Use the attenuator to tune it's response or dial it back. This input also sounds great with audio rate signals!

FM IN

A non attenuated, inverted CV input. This jack is really just for fun! It connects to the opposite side of the expo pair. Bring your cutoff down low and try inputting audio signals or CV.