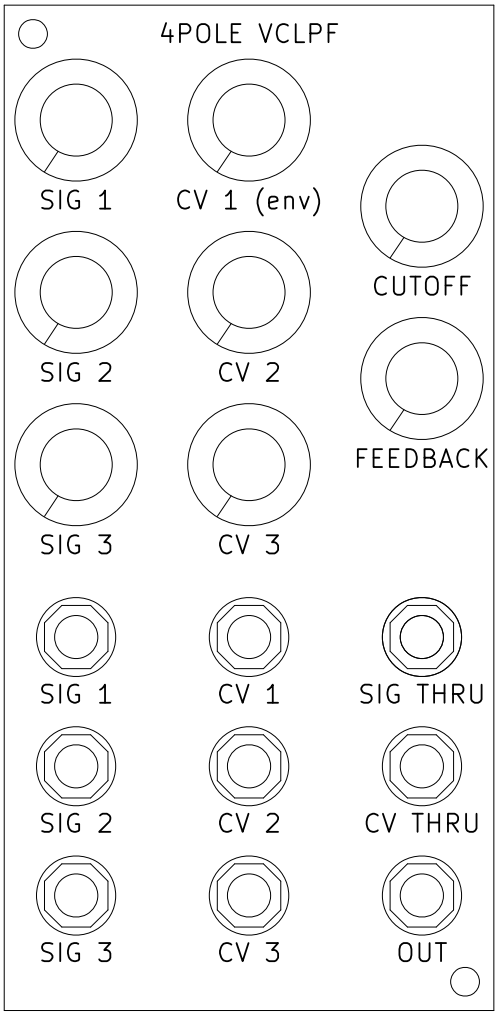
.: VCF User Manual :.

Brief:

Voltage Controlled Filter module with three input signal mixer and three input control voltage mixer. Various filter “plug-in boards” can be easily swapped in to try out different flavors of filters.

Panel layout:



Description of the controls:

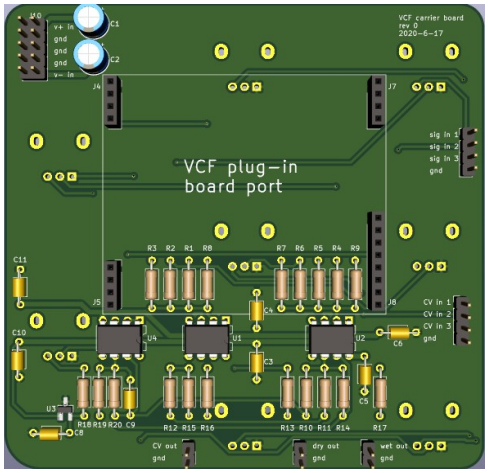
- SIG 1: attenuator for signal input 1.
- SIG 2: attenuator for signal input 2.
- SIG 3: attenuator for signal input 3.
- CV 1 (env): attenuator for control voltage input 1. This input has 0.5 volt per octave sensitivity when the CV 1 attenuator is turned all the way up, to allow for an extra wide range of modulation. This is useful for envelope generators with an output range of zero to +5 volts, to achieve a full 10 octave sweep. Note that the envelope generators native to this system have an output range of zero to +10 volts, so the extra sensitivity may not be required. It is included just in case you want an extra wide filter sweep.
- CV 2: attenuator for control voltage input 2. One volt per octave sensitivity when turned all the way up.
- CV 3: attenuator for control voltage input 3.One volt per octave sensitivity when turned all the way up.
- CUTOFF: manual cutoff frequency control.
- FEEDBACK: manual feedback control.

Description of the jacks:

- SIG 1: attenuated signal input 1.
- SIG 2: attenuated signal input 2.
- SIG 3: attenuated signal input 3.
- CV 1: attenuated control voltage input 1.
- CV 2: attenuated control voltage input 2.
- CV 3: attenuated control voltage input 3.
- SIG THRU: mix of the attenuated dry signal inputs 1, 2, and 3.
- CV THRU: mix of the attenuated CV inputs 1, 2, and 3.
- OUT: main filtered signal output.

Plug-in board information:

The filter module consists of a “motherboard” which can accept various filter “plug-in” boards by inserting them into this port on the back of the module:



An example filter plug-in board looks like this:

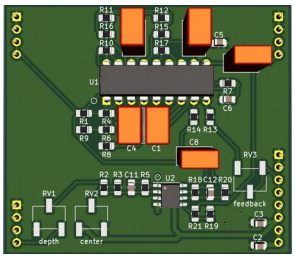
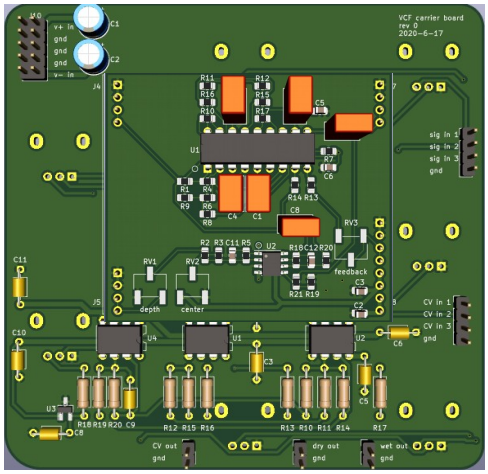


Illustration showing the example plug-in board inserted into the motherboard:



The plug-in filter boards must conform to a specific electrical and mechanical interface. If desired, see the documentation for the filter carrier board and the various filter plug-in boards for information on how these are designed.

Note about the SIG THRU and CV THRU jacks:

The SIG THRU and CV THRU jacks are provided as convenient extra mixers for the system. The SIG THRU jack outputs the dry sum of the signals patched to the SIG 1, 2, and 3 jacks and set by their respective attenuators. This summed dry signal may be useful, for instance, to patch to the MS20 filters, or to patch to a ring modulator, etc.
The CV THRU jack similarly outputs the sum of the CV signals present at the CV 1, 2, and 3 jacks.

Calibration:

Calibration is performed on the “plug-in” filter boards which are inserted into the port on the back of the pcb. These plug-in boards typically have three trim pots to adjust: depth, center, and feedback.

Adjust the feedback trimpot such that the filter reaches self oscillation when the FEEDBACK control is turned all the way up, or to taste. Note that on some filters, the self oscillation point may not be flat across the entire cutoff frequency range. Sweep the filter frequency up and down from time to time while adjusting this control to make sure that the feedback control responds nicely across the whole frequency range.

Adjust the center trimpot so that the filter has the desired cutoff frequency when the CUTOFF control is in the middle of its range, to taste.

The depth trimpot can be adjusted for an approximate 1 volt per octave response. To perform this calibration, apply a 1 volt per octave signal to CV input 2 and turn the CV 2 attenuator all the way up. Next turn the FEEDBACK control up until the filter self oscillates and adjust the trimmer while playing octaves until the filter plays in tune. Note that many filters will not

deliver perfect 1 volt per octave tracking over a wide range, and some filters will not track very well no matter what, so expect to make some compromises here.

Current draw:

+12 volts: 15mA
-12 volts: 15mA

Note that the current draw listed is only for the motherboard, and does not include any filter plug-in board that is installed. See the documentation for the specific plug-in board used for its current draw.