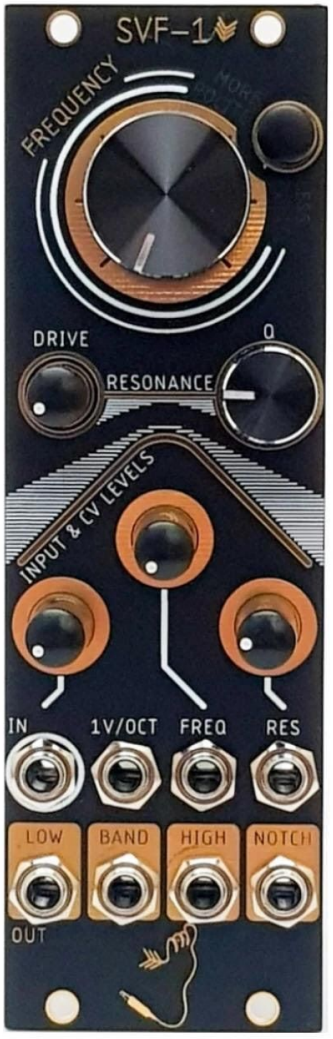
SVF-1

State Variable Filter



Manual revision 1/11/2020

Table of Contents

Overview

SVF-1 is a state variable filter with voltage controlled cutoff and resonance. The SVF-1 self-oscillates when the resonance is turned up and has a 1V/octave input for use as a sine wave VCO. The resonance circuit includes a Q control, a drive control, and a more/less polite to crank up the resonance even more. The Q control is also controllable via a CV input jack. All outputs are available simultaneously in Low Pass, Band Pass, High Pass, and Notch mode.

Installation

Tenderfoot Electronics modules are designed to be used with a Eurorack-compatible case and power supply. Before installing a new module into your case, please ensure that your power supply and case have sufficient space and available capacity to power the module.

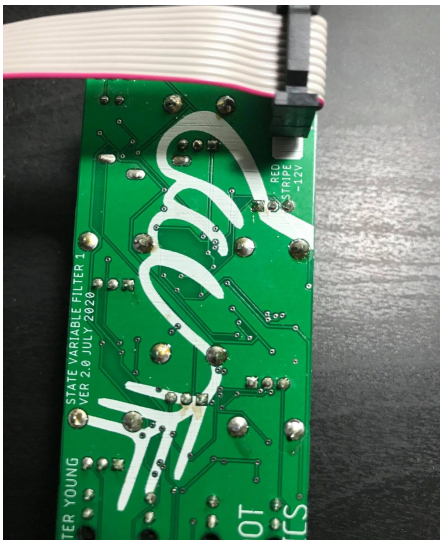
The SVF-1 draws current from the +12V and -12V rails, and can be used in cases without a 5V rail.

Failure to adequately power your modules may result in damage to your modules or power supply. If you are unsure, please contact us before proceeding.

Before installing or removing a module from your rack, ensure that you turn off the power supply for the case. If a module is removed or installed while the rack power supply is switched on, it could cause serious damage to either the module, or power supply, or both.

Connecting the power cable to the module:

The power header is labelled at one end with a bold stripe, and the words “red stripe -12V”. Align the red stripe on the ribbon cable with the “red stripe” label on the PCB.



Once the cable is attached to the module, connect the 16-pin end of the cable to your case's power supply, again ensuring the red stripe lines up with that of the power supply PCB.

Using the included screws, screw the module on to your rails, power up, and enjoy! If at any time you notice irregularities in the operation of the module, turn off the case and inspect all connections and cables.

Panel Layout

Frequency
Cutoff Frequency for Low Pass, Band Pass, High Pass, and Notch

More/Less Polite Mode
Switching between mild resonance and higher peaked resonance.

Resonance Q
Determines the level of resonance.

Drive Level
Gain level for Resonance Q.

Freq CV in Level
Attenuator for Frequency CV input.

Freq CV in
Frequency CV input for controlling Frequency knob via CV.

Input Level
Determines the level of input signals.

Input
Connect input signals here.

Res CV In Level
Attenuator for Resonance CV input.

Res CV In
Resonance CV input for controlling Resonance knob via CV.

V/Oct Input
The SVF-1 self-oscillates and turns into near perfect sine wave when the resonance is turned up. Plug in 1V/octave CV here to use the unit as a sine wave VCO.

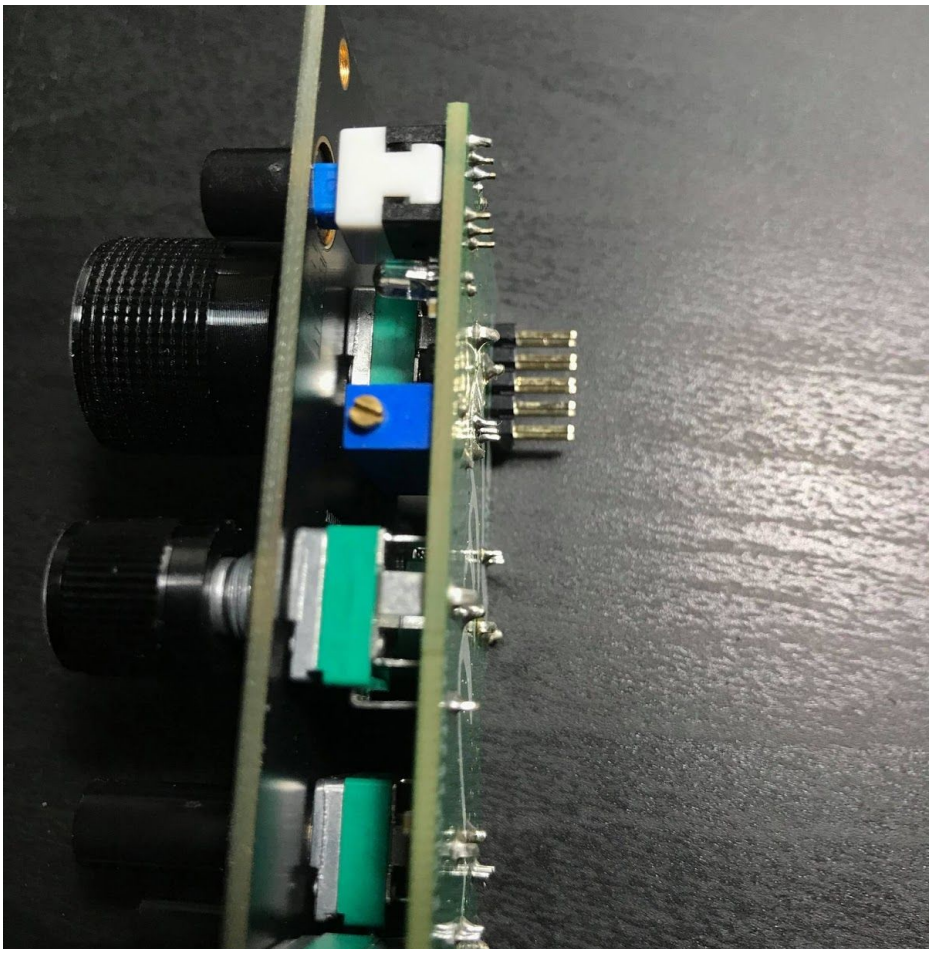
Outputs
Simultanious outputs in Low Pass, Band Pass, High Pass, and Notch mode.

V/Oct Calibration

The side of the unit contains a trimmer for V/Oct calibration. If you are experiencing pitch drift across the octaves, here are the steps to calibrate the accuracy of V/Oct response:

1. Plug in a V/Oct signal into 1V/Oct input.
2. Send the Notch output into a tuner, or speakers, if you wish to tune it by ears.
3. Tweak the trimmer with a flathead screwdriver until the unit responds with V/Oct signals accurately.

Reminder: The trimmer only changes accuracy between each octave. It does not change the pitch of the oscillation.



IMPORTANT THINGS TO NOTE AND REMEMBER

1. Make sure you plug the power cable on to the correct orientation, and line up the red stripe with the white marking on the PCB silkscreen.

2. Have fun with the module, and if you have any questions or issues regarding it, don't hesitate to get in touch with us at **support@tenderfootelectronics.com** !