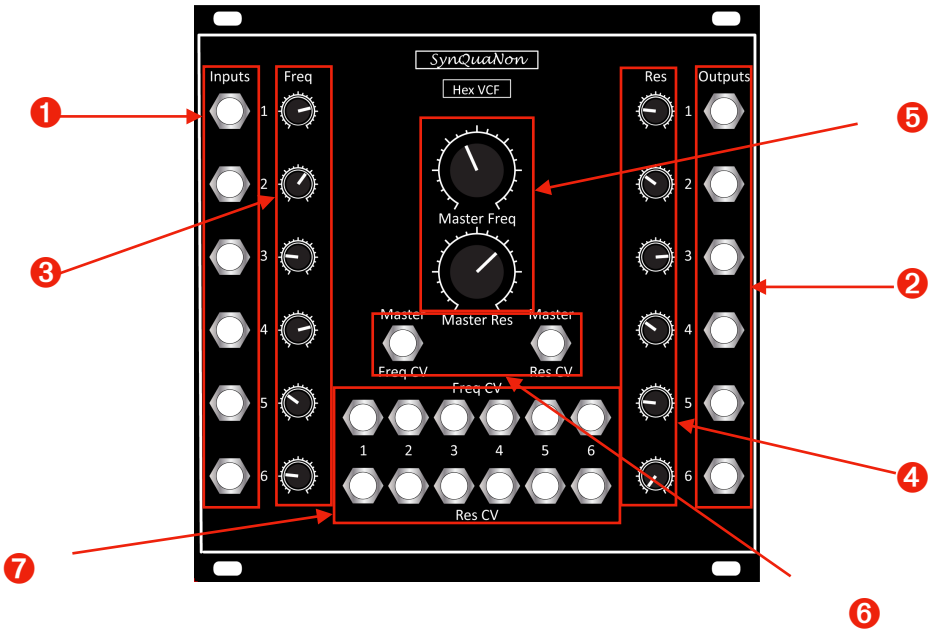
Hex VCF

Introduction

Congratulations on your purchase of this SynQuaNon product! It is our belief that our products will enable you to find new and interesting ways to create custom sounds with your synthesizer and other SynQuaNon modules. Check out our full line at www.synquanon.com.

Module front panel overview



❶ Inputs	Audio inputs 1 - 6; accept +/- 12V signals.
❷ Outputs	Audio outputs 1 - 6; up to +/- 12V signals.
❸ Frequency controls	Individual potentiometers adjust cutoff frequency
❹ Resonance controls	Individual channel control over filter resonance.
❺ Master controls	Adjust cutoff frequency and resonance for all channels
❻ Master CV inputs	Accept CV inputs for master frequency and resonance
❼ Channel CV inputs	Individual CV inputs for frequency and resonance

Overview

The Hex VCF consists of six classic analog low pass filters with a 24dB per octave slope.

It uses the renowned SSM-2044 IC that formed the filter section for countless vintage synths. The filter's tone is warm and creamy at low resonance settings and moves into fat, over-driven squelches at the higher end of its range. It will self oscillate when resonance is cranked and outputs a pure sine tone. In addition, the frequency CV input tracks volt per octave allowing it to double as a sine wave VCO.

Master cutoff frequency and resonance CV inputs with controls allow for adjustment of all six channels simultaneously.

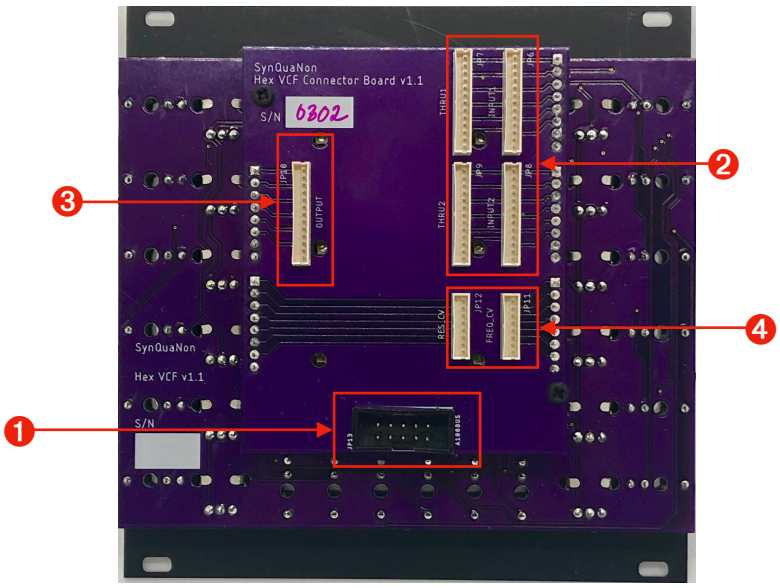
Ideal for guitar or bass single-string processing.

Hand-built in the USA.

Features

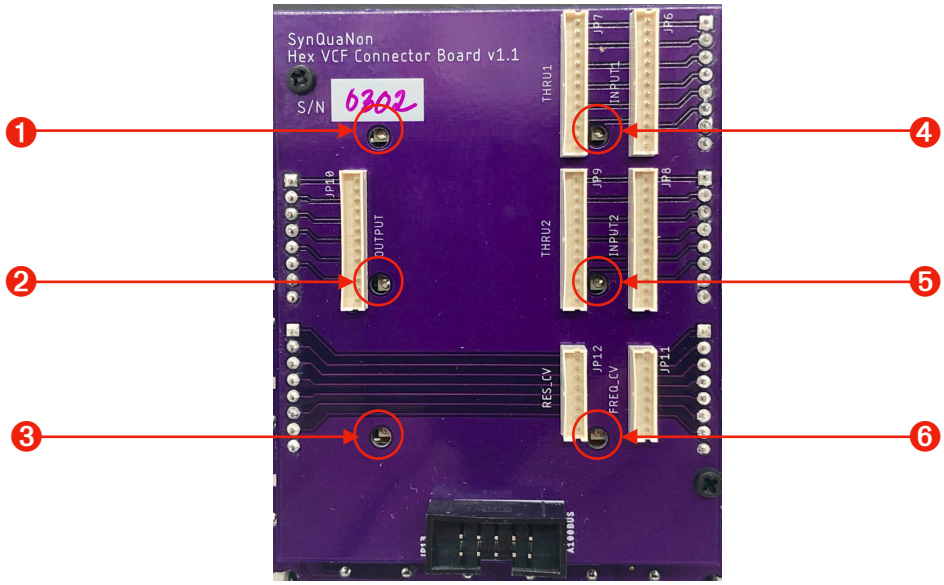
- Analog 4-pole low pass filters with renowned SSM-2044 filter topology
- CV over frequency and resonance for each channel as well as master control
- Frequency CV tracks volt per octave
- Two sets of audio inputs via back connectors
- SynQuaNon Bus audio input, through, and output headers on the back of the module. Input and CVs normalled to front panel jacks.
- Pairs well with 13-Pin Input Breakout, Nexus Input Breakout, Hex Fuzz Amplifier, Hex VU Meter, 7-Channel Amplifier-Attenuator, and Hex VCA.

Module rear panel overview



❶ A100 Bus	Keyed power connection with reverse polarity protection. Red stripe is on the left.
❷ Input 1,2 and Thru	SynQuaNon Audio Bus input connection for two sets of 6 inputs, normalled to panel input jacks. Through connectors allow for module daisy-chaining.
❸ Output	Signals from output jacks are available on this header for patch cable-free connections to other SynQuaNon modules.
❹ CV Freq, Res Inputs	SynQuaNon CV Bus input connections for Freq and Res control voltages, normalled to panel input jacks.

Frequency tracking calibration (optional)



❶ Channel 1 V/Oct	Trimpot for Channel 1 V/oct tracking adjustment.
❷ Channel 2 V/Oct	Trimpot for Channel 2 V/oct tracking adjustment.
❸ Channel 3 V/Oct	Trimpot for Channel 3 V/oct tracking adjustment.
❹ Channel 4 V/Oct	Trimpot for Channel 4 V/oct tracking adjustment.
❺ Channel 5 V/Oct	Trimpot for Channel 5 V/oct tracking adjustment.
❻ Channel 6 V/Oct	Trimpot for Channel 6 V/oct tracking adjustment.

To calibrate the Freq CV input for 1V/Octave or other musical interval track- ing, you will need:

- A well-calibrated voltage source (musical sequencer or quantizer), or a variable DC voltage supply.
- A frequency counter, musical tuner or golden ears.

Turning the trim pot will expand or contract the overall range of the Freq CV.

To begin calibrating, turn resonance all the way up to generate a pure sine tone.

Use the Freq Knob to tune this to a recognizable frequency or note (e.g. 50 Hz or A0), and keep this note in mind throughout the following process.

Apply +1V – The frequency should now be about two times your original frequency (or one octave up).

Turning the trim pot clockwise will contract the overall range, while turning counter-clockwise will expand the range.

Based on the frequency with +1V applied, you will want to turn the trim pot so that the frequency moves away from the target.

Now remove the +1V. You should have a different frequency at the bottom.

Retune to the original fundamental tone, and repeat the above process until +1V is calibrated.

Now move on to +2V, and +3V. The process is the same, with the exception that you will want to use the in-between voltages to check whether the octaves are evenly spaced from each other.

Playing a familiar scale or sequence can be helpful when calibrating by ear.

The lower the desired range the easier it is to calibrate, and the more octaves it will track.

Repeat the above process for each channel. Now go make some music!

Technical Specifications + Downloads

Width	25 HP	ModularGrid	Hex VCF
Depth	37 mm		
Power	125 mA @ +12V		
	109 mA @ -12V		
	0 mA @ +5V		
Freq CV	-8V to +8V input range		
Res CV	-5V to +5V input range		

Reverse power protection, resettable fuses, extensive power supply filtering.

Support

In case of difficulty:

1. Make sure power is available to the Eurorack and that it is turned ON.
2. Check the rear module power connection (turn OFF Eurorack power first)
3. Check patch cables for continuity or shorts.
4. Check level settings on front panel. Check gain select header on rear of module for proper gain range selection (turn OFF Eurorack power first).

For additional information please feel free to contact us at support@synquanon.com