

Root Locus is an analog 12dB/octave multimode filter, based on the CGS512 VCFQ filter. It adds a dual input crossfading mixer with gain control and a variable mode output with cv control for sweeps between filter modes, aiming for an extensive tonal variety! It also features a Ping input that allows for an impressively wide variety of percussive sounds. The Sub Range switch makes it a very versatile CV filter too, able to filter control voltages as well as transforming it to a VC Slew Limiter and Quadrature LFO while in self oscillation.

Features:

- Two input crossfading mixer with CV control.
- Voltage controlled *Mode out* for smooth sweeps between filter modes.
- Individual filter outputs for low pass, band pass, notch and high pass filters.
- *Frequency CV* input with attenuverter and additional *V/oct* input.
- Voltage Controlled *Q*.
- *Ping input* for striking the filter.
- *Sub range* switch for filtering control voltages and quadrature LFO operation.

Tech Specs:

Depth: 30mm, Skiff Friendly!

Power: 47mA @+12V / 48mA @-12V

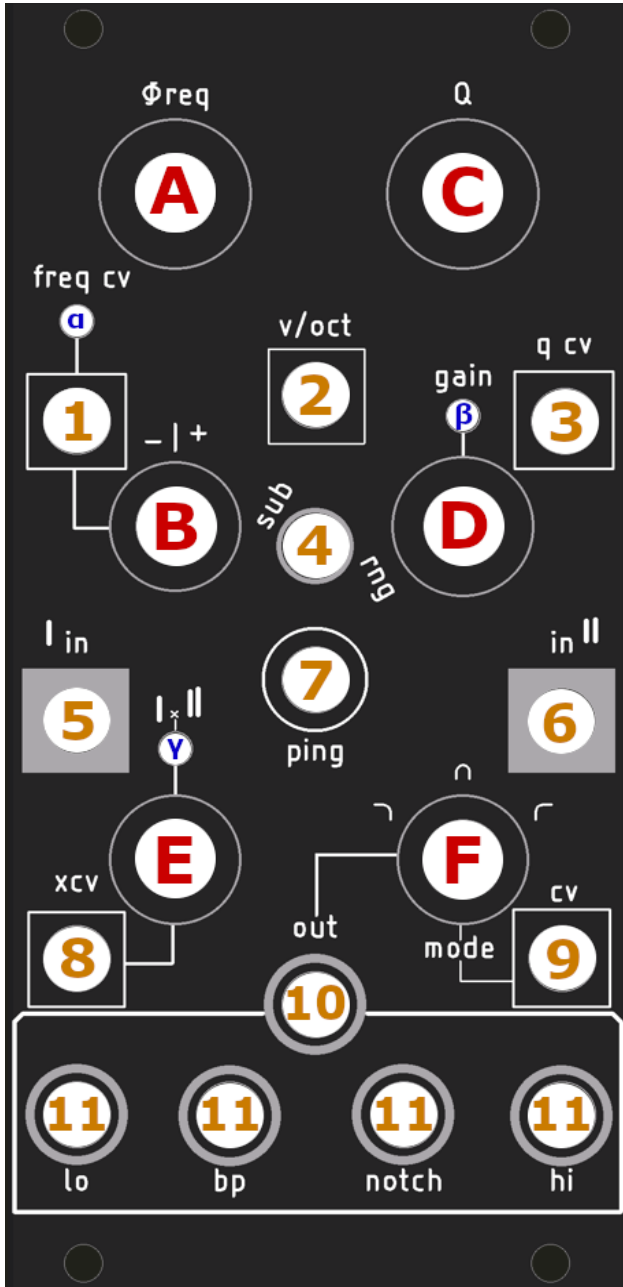
Reverse polarity protected!

12hp

Installation

Before installing this module disconnect the power from your system! Double check the polarity of the ribbon cable! The red stripe should be aligned with the -12V rail, on both the module (white bold line) and on the bus board.

User Guide:



- A.** Controls the cutoff frequency of the filter.
- B.** Attenuverter for Freq CV input.
- C.** Controls the level of resonance.
- D.** Sets the initial level of the input(s) mix
- E.** Crossfades between input I and II.
- F.** Continuously controls the Mode of filter from low to bandpass to hi pass.

α. Bipolar Freq CV input indicator.

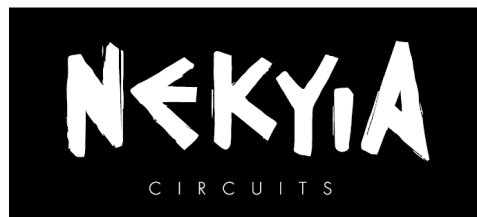
β. Input gain amount indicator.

γ. Bipolar indicator for the position of the crossfader.

- 1.** Voltage control input for cutoff frequency.
- 2.** Volt per octave cv input.
- 3.** Voltage control input for resonance.
- 4.** Sub range mode activates when pressed down.
- 5.** Signal input I.
- 6.** Signal input II.
- 7.** Trigger input, briefly opens the Freq to max.
- 8.** Voltage control input for X-fader.
- 9.** Voltage control input for filter Mode.
- 10.** Variable Mode filter output.
- 11.** Individual Filter Modes Outputs: low pass, bandpass, notch and high pass filter outs.

Tips & Tricks

- Root Locus can go into self-oscillation by patching the *hi or band outputs* back into the filter *inputs*, making it a great sounding sine oscillator with a *V/oct input*.
- Many feedback and waveshaping options can be explored by patching the *filter outputs* back into the *freq CV* and *mode CV* inputs therefore fully embracing the concept of patch programmability; a leading aspect in all Serge designs.
- *Ping input* adds the ability to make a wide variety of percussive sounds without the need of an external audio source; only by cranking the *Q knob*. Pinging the filter also sounds great when feeding the *input(s)* with an external audio while adjusting the *resonance* for creating vowel or oscillator sync type sounds.
- Setting the *gain knob* past 12 o'clock allows for warm saturation and the addition of harmonics. Variable out has a more wild resonance and saturation than individual filter outs.
- Activating *sub range switch* (down position) enables Root Locus to filter control voltages such as sequences or LFOs. Also in *sub range* mode, when the filter is in self oscillation, it is being transformed to a quadrature LFO where *Frequency* knob controls the rate and *Gain* controls the amount of the LFO. The individual filter outs carry the 4 LFO outs each with a different waveshape and phase too.



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