



Rottnest SSI2131 VCO/LFO Assembly Instructions - Eurorack
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Hello and thank you for using the Rottnest VCO DIY kit. We hope you will find its tones most pleasing!

Assembly Instructions:

1. Install surface mount components on the rear of the PCB. We recommend using No-Clean liquid flux on the board before applying quality solder paste such as Chip-Quik SMD291SNL, tweezing components onto the board, and reflowing with a hot air station or oven. However, the size of these components (0805) means they can likely be hand-soldered by anyone with reasonable soldering experience.

Update 5/12/22: Some PCBA v1.5 were released with a 1N4148 diode in the D7 position, intended to protect the VCO chip. However, this diode will affect the functionality of the Soft Sync input at higher frequencies and we recommend removing it, or not placing it (DNP) if you are populating the board yourself.

2. Solder rear through-hole parts: 10-pin Eurorack power header, 3x 5k Multiturn trimmers, and L78L05 and L79L05 regulators (**note the silkscreen indicators for + and - !**).

3. Insert all frontal hardware and the LED into the other side of the PCB, but **do not solder these parts yet**. Double check minor details, such as that proper potentiometer values are used and an SPDT ON-OFF-ON switch is installed for the Range position but an ON-OFF is used for Saw/Ramp waveform and 1-2 Fold select switches. If your potentiometers have solder tabs, be sure to break them off with a soldering iron. **Note that with all LEDs, the square pin indicates the LED's cathode, or short leg.**

4. Place the panel over the hardware and hand-tighten the appropriate nuts over the potentiometers, switches, and Thonkiconn jacks.

5. With the PCB facing up and panel facing down, double check that all hardware is properly seated in the appropriate PCB holes. If it is, position the front LED so it sits in the front panel hole and solder one leg. Double check its position, then solder the other leg. Once the LED is set up, solder the potentiometers and switches in place.

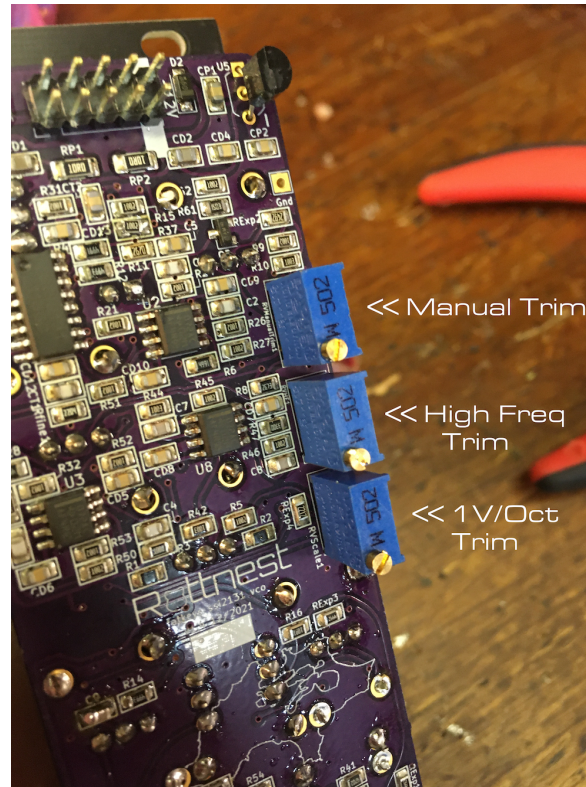
6. Solder all frontal hardware into place **except** the two plastic potentiometers used for Lin FM and Expo FM.

7. Once all other hardware is secured, solder the two plastic potentiometers using the following method:

- Solder one leg of one pot
- Check to see if the pot is mounted in such a way that it does not touch the panel when turned
- If it isn't, use a finger to adjust the pot's position while heating the one soldered pad
- Once the pot is not touching the panel, solder the second leg, double check and solder the pins
- Repeat for second potentiometer

8. Plug in your Rottnest, making sure the red stripe (-12V) is aligned with the silkscreen. Turn it on and confirm (by ear if you want) that all waveform outputs and ranges are functional, and test all the CV inputs.

9. Calibrate your Rottnest.



1. Connect the Rottnest's Triangle output to a frequency counter; the more precise the better!
2. Set the Range switch to the "Hi" setting.
3. Turn the Coarse Tune knob fully Counter Clockwise and adjust RVManualTrim1 to set the lowest frequency in the Rottnest's VCO range. We recommend between 8-10Hz.
4. Connect a precision voltage source to the Rottnest's "1V/Oct" input and use the knobs to adjust the frequency so it reads 110Hz with 0V input.
5. Feed 3V to the "1V/Oct" input and adjust RVScale1 so that the frequency is as close to 880Hz as possible.
6. Return to 0V input and adjust the knobs again so the frequency is 110Hz once again.
7. Repeat steps 5 and 6 until desired accuracy is achieved. This should also result in a frequency of almost exactly 220Hz with 1V input and 440Hz with 2V input.
8. If exact high-frequency tracking is desired, tune the oscillator to 110Hz at 0V input, then feed a 5V signal into the "1V/Oct" input and adjust RVHF1 so the frequency is close to 3,520Hz. Repeat this for 7.04kHz with 6V input and 14.08kHz with 7V as required.
9. All done!
10. Enjoy your new oscillator!

Thank you for building the Rottnest!