



HEXINVERTER.NET

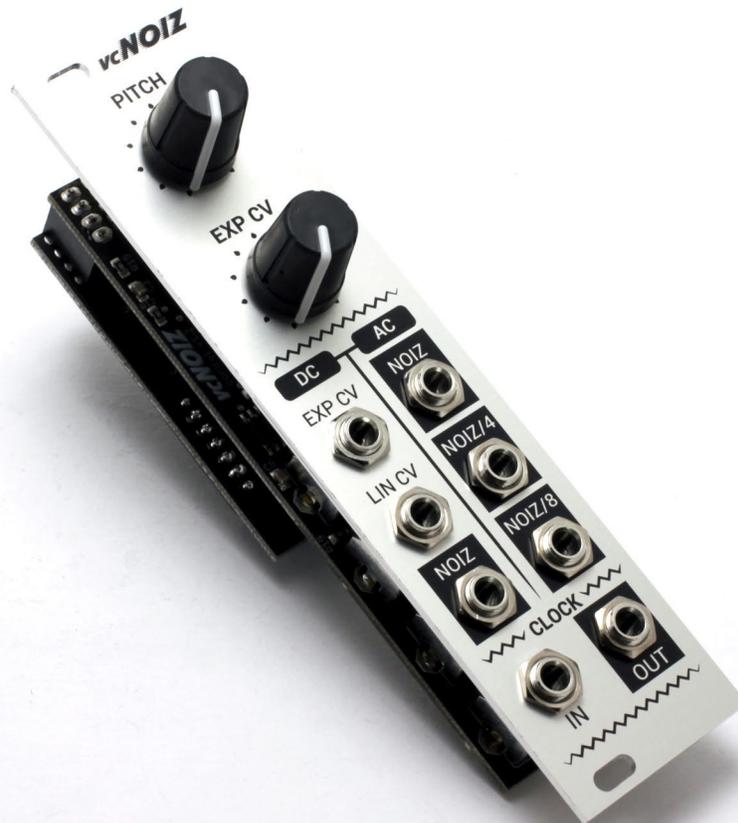
presents:

vcNOIZ

voltage controlled noise oscillator

SURFACE MOUNT KIT ASSEMBLY MANUAL

Manual v1.0



Introduction

Welcome and thanks for your purchase of/interest in vcNOIZ!

This manual was created to serve as a step-by-step guide to aid you in assembling a vcNOIZ surface mount full 6HP eurorack kit from hexinverter.net

This should be a relatively simple kit to assemble as the majority of parts are surface mount and are already soldered to the PCB assembly for you! That being said, you have to know how to solder properly or you will wind up with a poorly (or not at all) functioning module!

If you are looking for the universal format assembly manual, features, usage guides, design philosophy/description or anything else that is not assembly related please see the other manuals available for download at the hexinverter.net project site **(CLICK)**.

Upon receiving your kit, please compare your kit's contents with the Bill of Materials on the project page before building to check and see if any parts are missing. While I strive for perfection in my kit packaging, I am only human and sometimes mistakes are made! Please email me at hex[at]hexinverter.net if something has accidentally been missed and I will sort it out!

Well, let's get started building!...

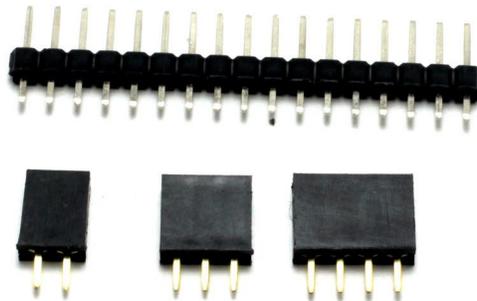
Assembling the PCBs

vcNOIZ uses a stacking board design so that it is easily to assemble and fits comfortably in today's rather shallow designed eurorack cases. Before we go ahead and start putting together the control surface, some parts need to be soldered to the surface mount PCB assemblies.

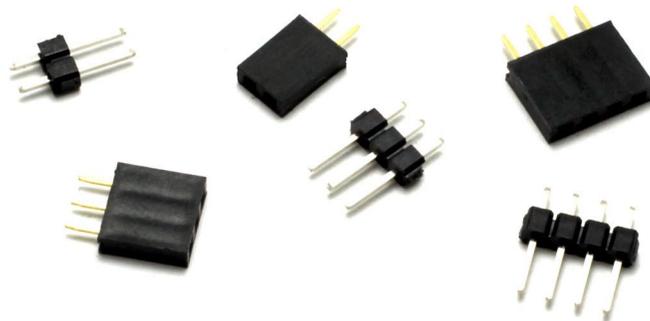
Care must be taken to ensure you do not mess up your module. Make sure that you follow instructions closely unless you are already a seasoned builder and totally know what you are doing. I still suggest a quick read through just to make sure you know how everything goes together!

Step 1: Prepare the inter-board connect headers

Gather up all of the male and female headers included in the kit:



Snap a 4pin, 3pin and 2pin section off of the longer male header:

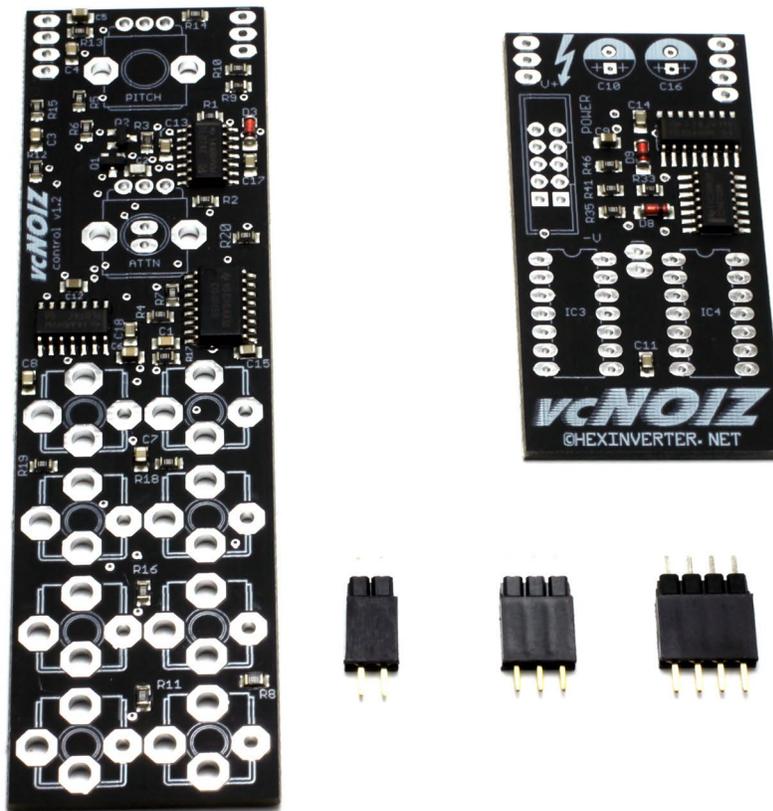


Prepare the header assemblies by pairing up the male and female ends, like so:

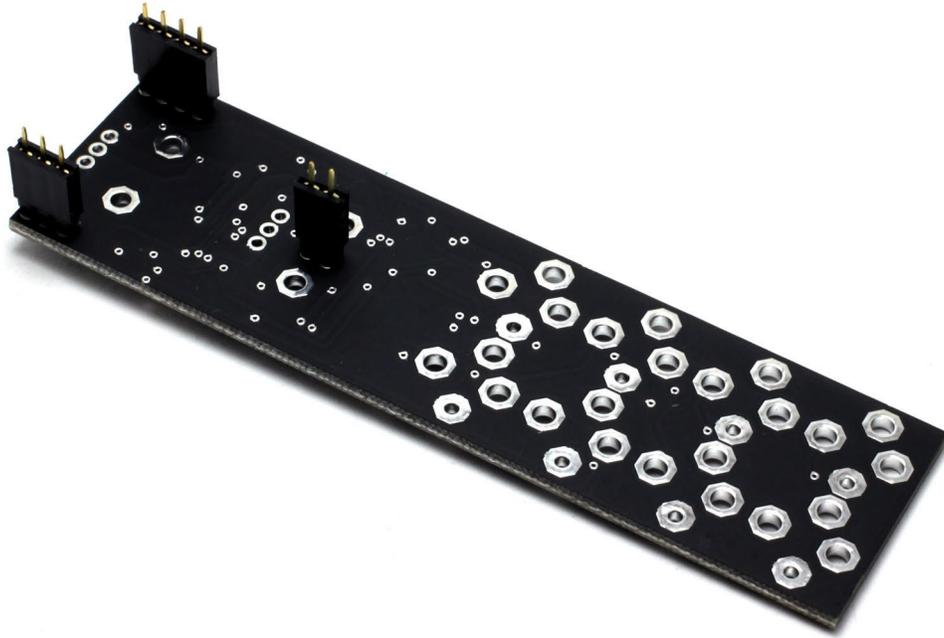


Step 2: Install the headers into the PCB stack

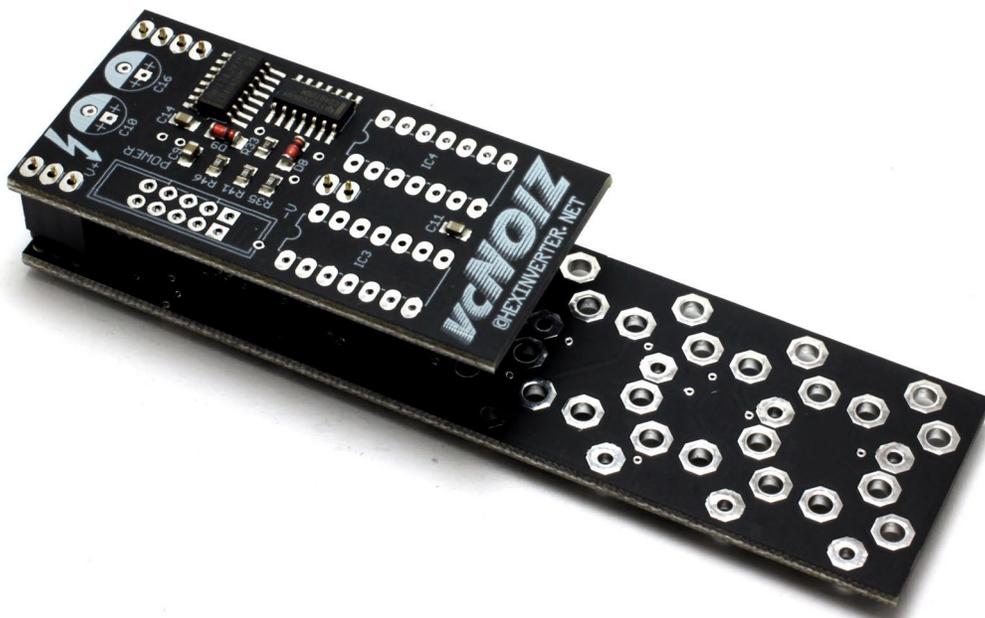
Gather up the header assemblies from the previous step as well as the surface mount board assemblies:



Now, install but do not solder the header assemblies into the control board, like this:



Stack the logic board on top of the headers:

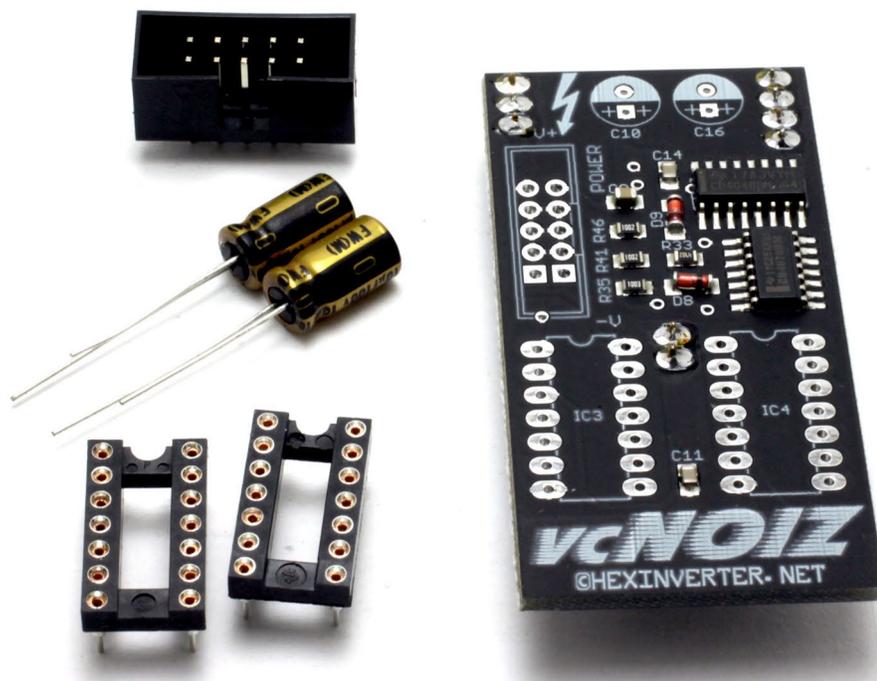


Now, being careful to keep the headers straight, “tack” one pin of each header in place with the soldering iron. Inspect your work and reheat any soldering joints while adjusting the PCBs to ensure that the assembly goes together aligned in a straight fashion.

Once you are happy with the alignment, solder the remaining header pins on both the logic and control boards’ sides.

Step 3: Logic board assembly

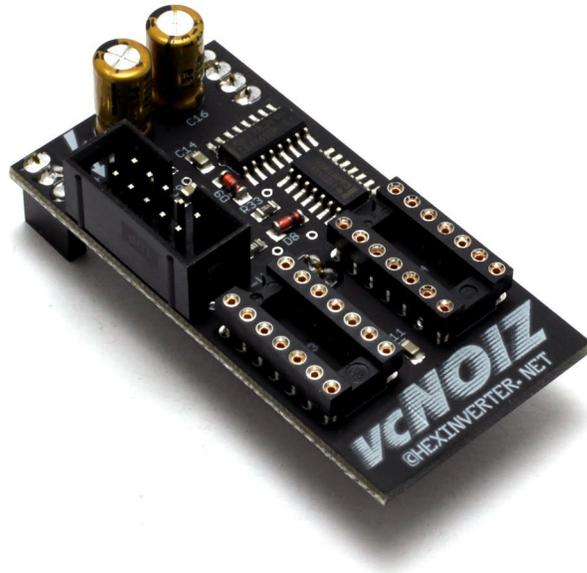
Gather up the parts to solder into the logic board:



Solder in the components, beginning with the two 14pin IC sockets. **Make sure the notch is aligned with the PCB's graphics.**

Next, solder in the eurorack power header, once again being careful to install the correct way.

Finally, solder in the two 10uF electrolytic capacitors. These two components are polarised which means you **MUST install them the correct way**. The negative side on the capacitor (marked with a stripe) is to be installed in the white/shaded semicircle on the PCB graphics.



Step 4: Prepare the potentiometers

The two potentiometers used in this design unfortunately need to have their shafts snipped to the right length for the knobs. This is thankfully an easy affair since the plastic used for the shafts is nice and soft and very easy to cut. I have great success with a pair of wire snippers.

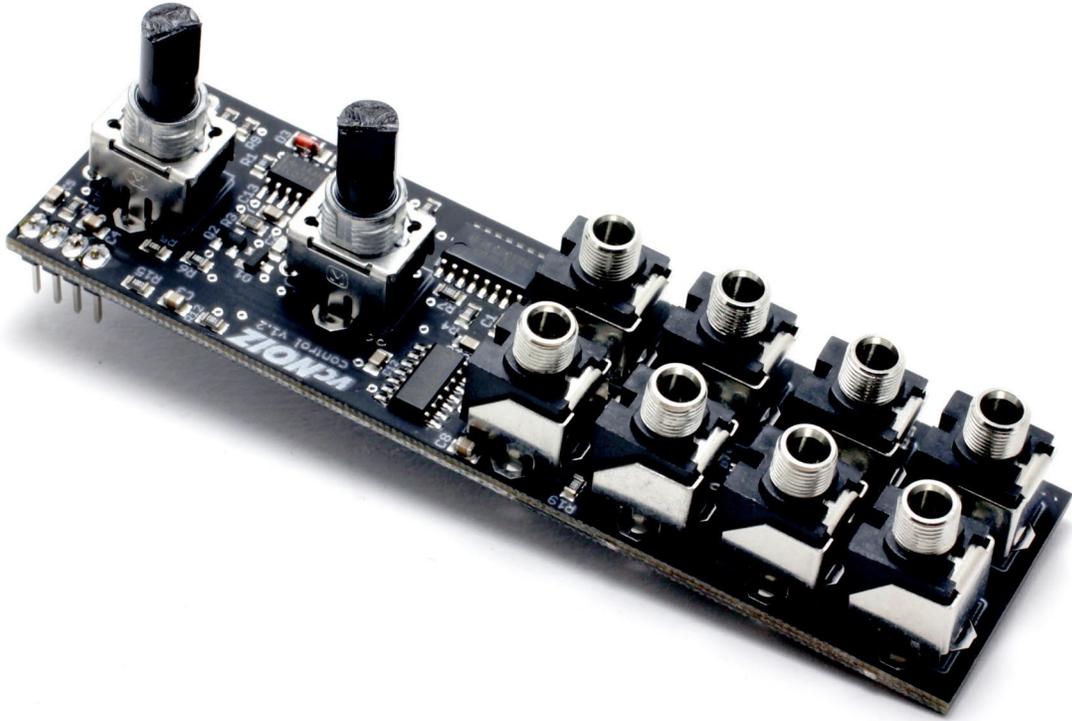
The key is to remove about 50% of the **flattened area of the shaft's** length. As long as you remove enough material (but not too much) the knob will seat perfectly against the area of the shaft that is not flattened near the bottom -- this is exactly what we want. Don't worry about the ugly trimming. It is all hidden in the end!

I recommend to test fit the knob on the shaft a few times.

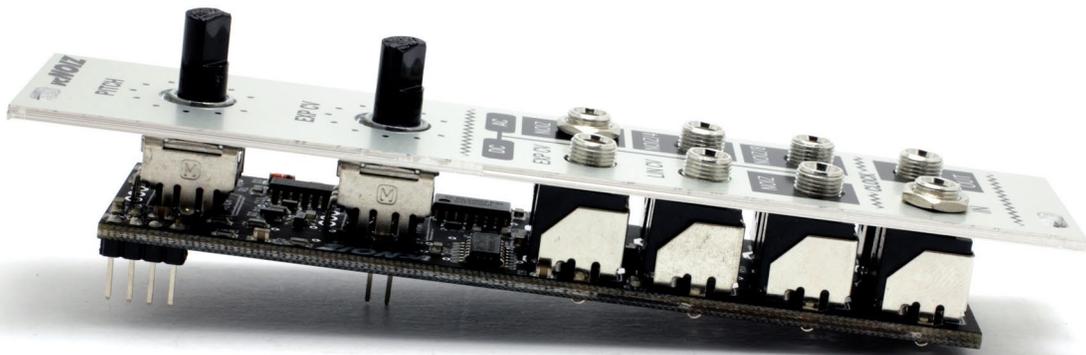


Step 5: Assemble the control surface

Gather up the two potentiometers and eight 3.5mm jacks. Install but do not yet solder the components into the control surface PCB.



Next, remove the protective plastic from the eurorack panel and install it onto the control surface PCB. Finger tighten two opposite nuts onto the jacks. **Don't use a tool to tighten the jacks, and do not solder any of the components yet!**



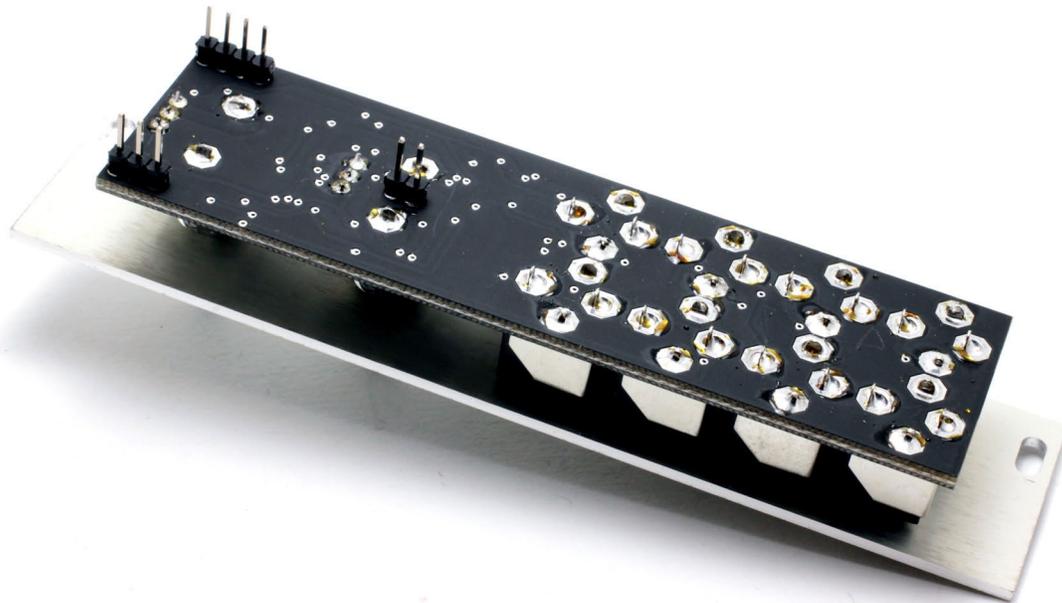
Now is when you have to be really careful. Flip the assembly over and **solder one leg only** of each of the components on the control surface PCB.

What you now want to do is adjust each component individually while reheating the one leg you soldered with the soldering iron (being careful of course not to burn yourself in the process).

I would start by adjusting the two potentiometers. Once they are adjusted and nice and flat against the PCB/sticking straight up, go ahead and adjust the jacks.

After each component, reinspect the PCB before moving onto the next one.

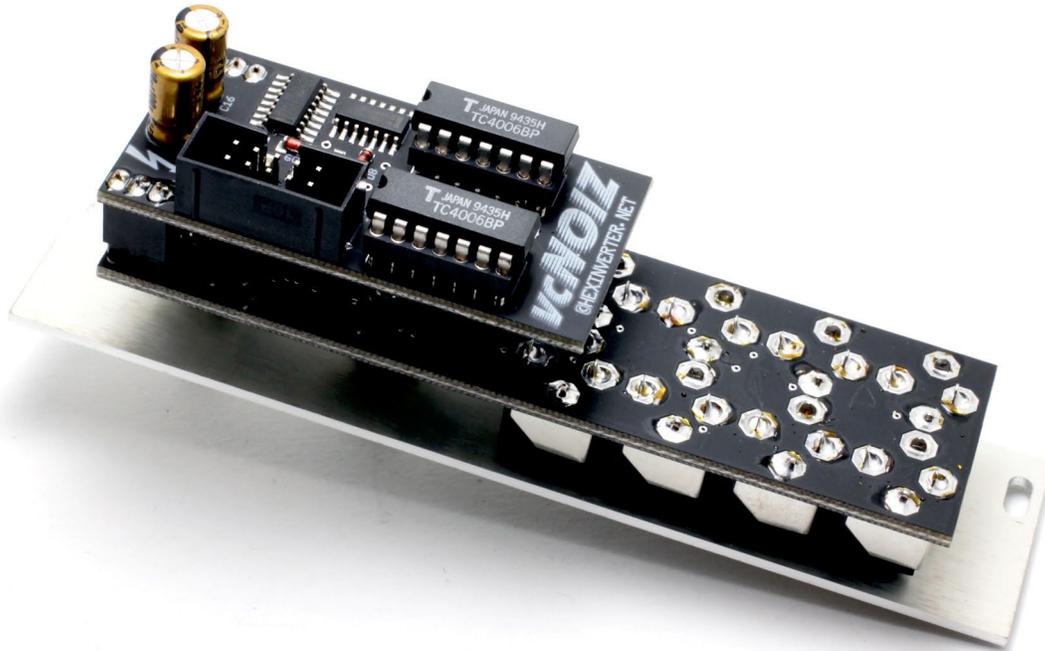
Once you are happy with all of the components' positions, solder the remaining legs of all of the control surface components:



Step 6: Stack the PCBs together and install the ICs

Connect the control and logic boards together via the headers you soldered earlier. Install the two 4006 ICs, being careful to align the notch to the IC socket.

I recommend leaving only a few nuts holding the control surface parts to the panel for now. **Wait until you have tested the module before you spend the time tightening everything down!**



Step 7: Test the module

Inspect all of your work before connecting power to the module for testing. Listen for noise at the outputs that is controlled by the Pitch knob when you turn it. If everything looks good, move onto the next step! If it doesn't work, you might have a short somewhere or forgot to solder one of the headers/components' leads in place. **Go back and look over everything again for faults if it doesn't work!**

Step 8: Finish up!

Once the module works to your satisfaction, finish up by installing all of the jack nuts, pressing the knobs onto the potentiometers and hot glueing the two boards together.

Place a dab of hot glue (or model cement, though hot glue is less permanent if you ever need to disconnect the PCBs) on each of the headers where they mate together, then let it dry.

Your vcNOIZ is now complete! Have fun making juicy voltage controlled noise! For the User Manual and patch suggestions, see the hexinverter.net project site here: **(CLICK)**.