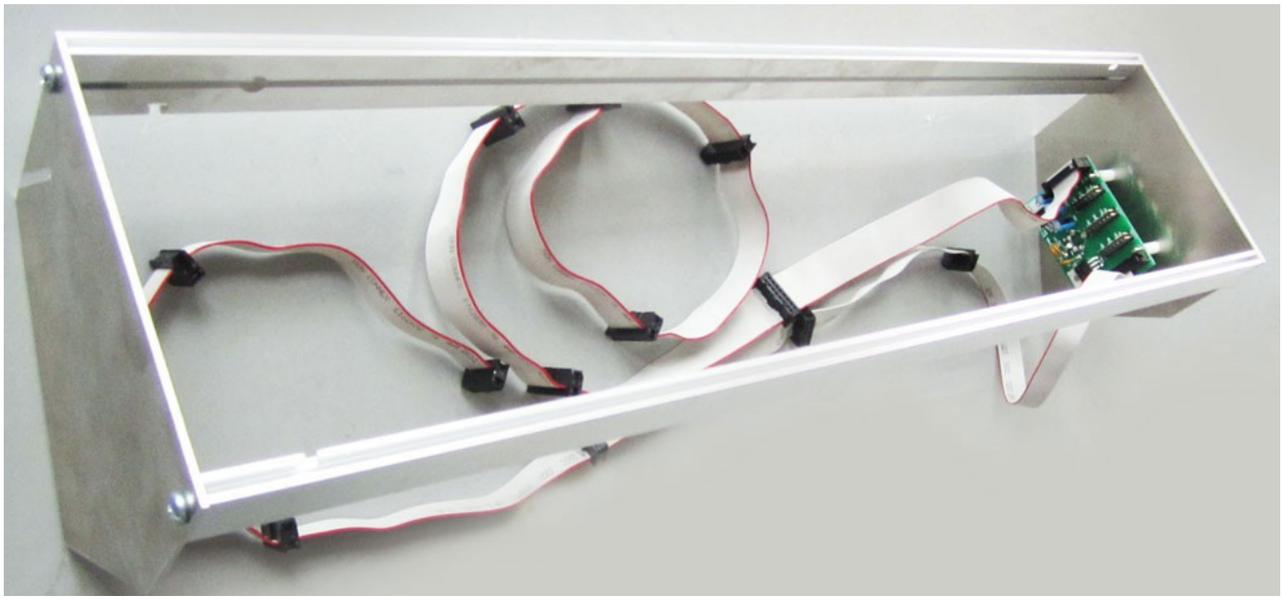
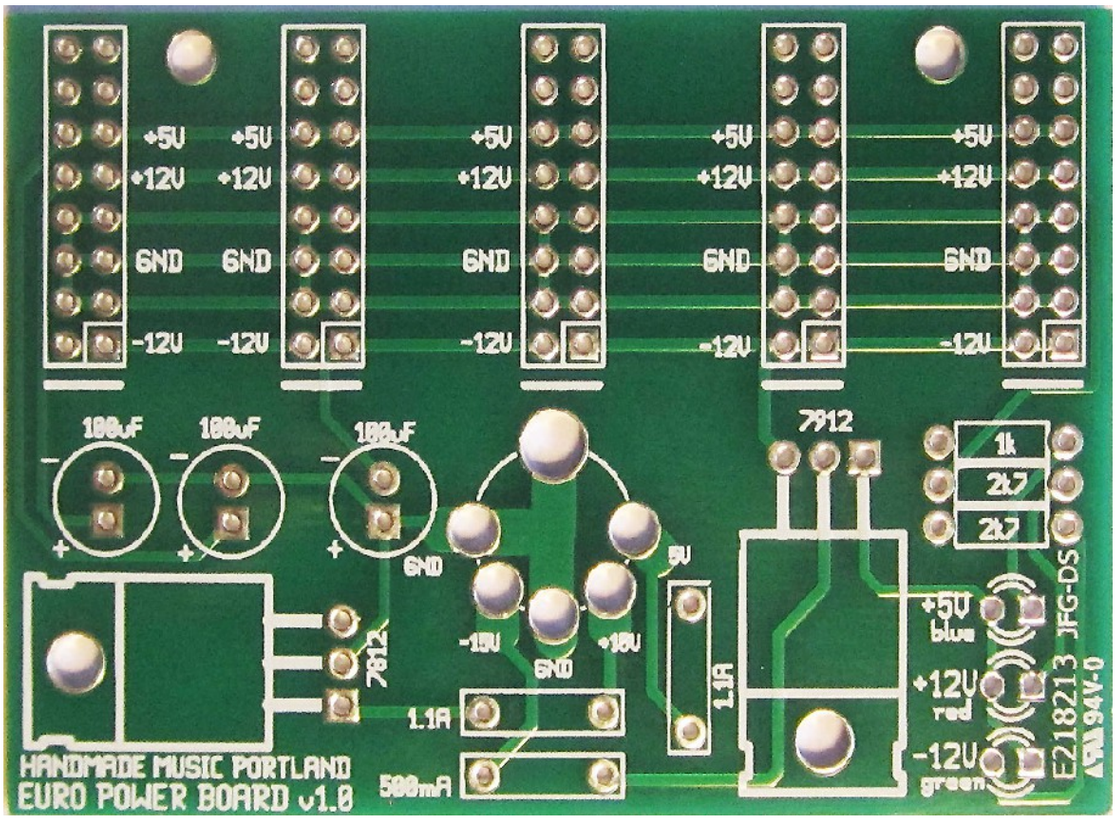
Simple Eurorack Row

Kit Builder's Guide

4mspedals.com





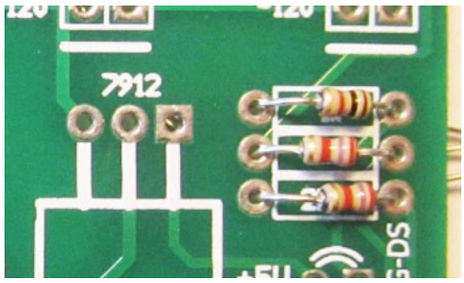
Simple Eurorack Row

This guide is for building a single-row eurorack case with a power supply. When completed, the case is ready to accept eurorack modules, and (under most circumstances) can power as many modules that will fit in the case. You should have basic soldering skills and be able to use a screwdriver. This kit works with low DC voltages, so it's completely safe. There is no risk of electrocution if you make a mistake (the AC power section is completely contained and already built for you by a UL listed manufacturer).

This single row is 104HP and has sliding nuts (M2.5). The power supply generates +12V, +5V, and -12V. Maximum power draw is 1.1A on the +12V and +5V, and 500mA on the -12V.

Tools Needed:

- Soldering iron, solder
- Flush snips
- Needlenose pliers (optional, for holding nuts while tightening screws)
- Screw drivers: Phillips #2 and Phillips #1 (small)
- Multimeter (optional, for debugging)



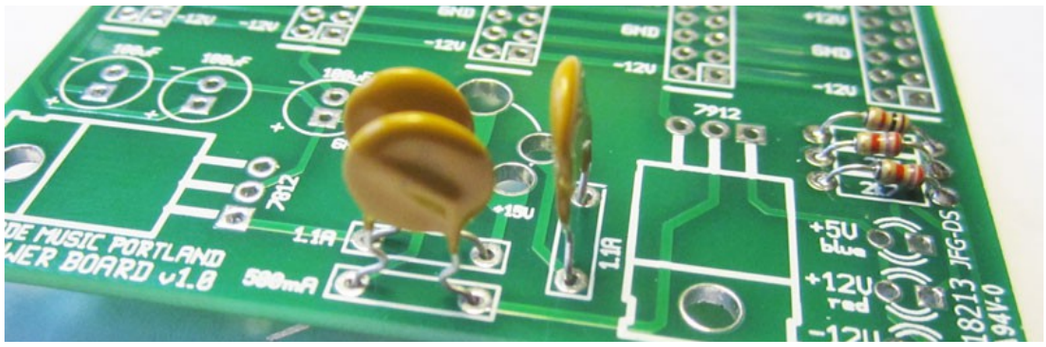
Step 1: Resistors
Insert and solder the 3 resistors.

- *1k (brown black red gold)*
- *2k7 x 2 (red purple red gold)*

After soldering, snip the leads flush to the PCB (you'll be snipping the leads flush on all the components after soldering)

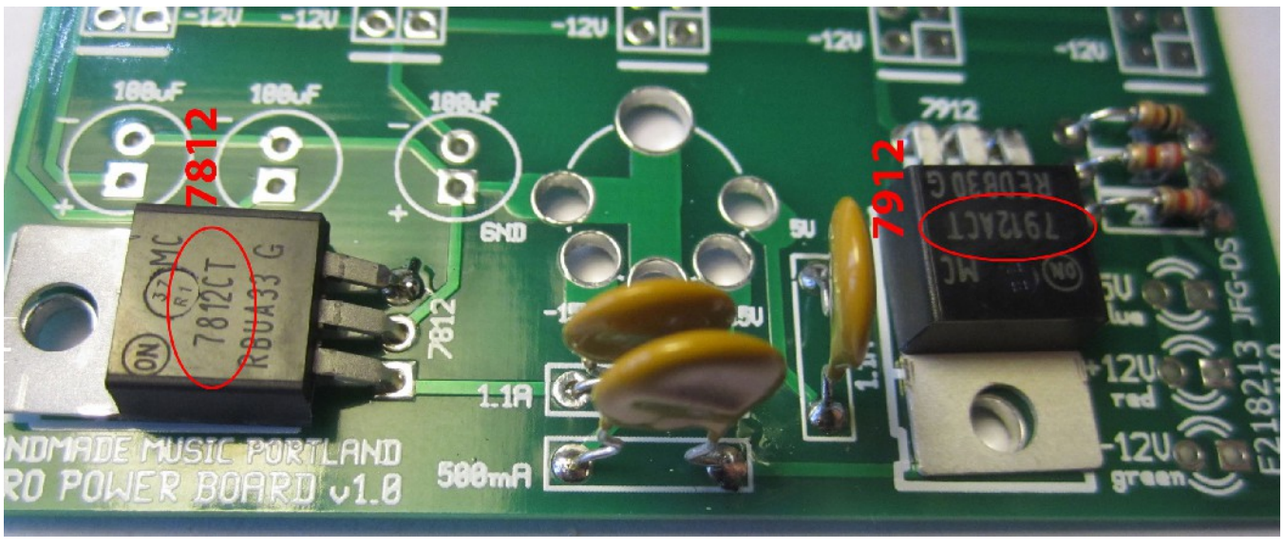
Step 2: Fuses
Insert and solder the three fuses. There are two 1.1A fuses and one 500mA or 650mA fuse. The 1.1A fuses are labeled R110, the 500mA are labeled XF050, and the 650mA are labeled R065.
If your kit contains a 650mA fuse, insert it into the spot marked "500mA" on the PCB.

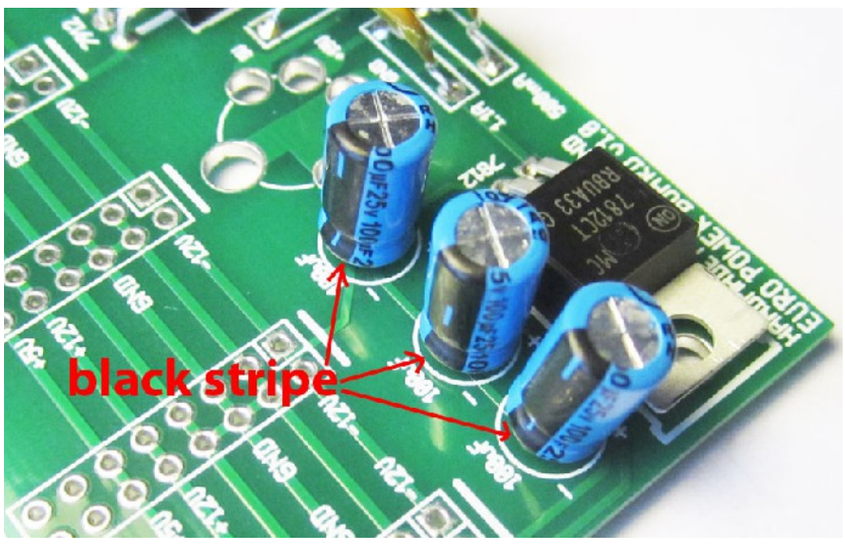
- *1.1A fuses (R110) x 2*
- *500mA (XF050) or 650mA (R065) fuse x 1*



Step 3: Voltage regulators:
Insert and solder the 2 voltage regulators. One is labeled "7812" and the other is labeled "7912". Use a bright light to read the numbers. Bend them down as shown in the photo, and solder the pins.

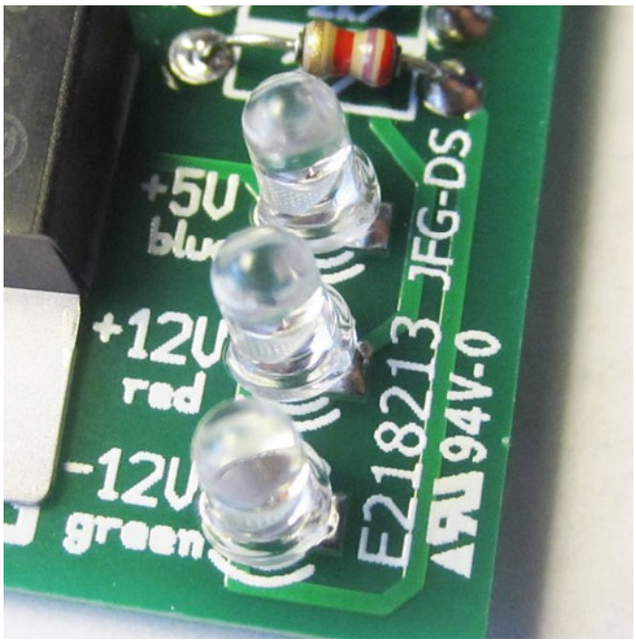
- *7812 x 1*
- *7912 x 1*





Step 4: Capacitors:
Insert and solder the three capacitors. The orientation is crucial: the stripe on the capacitor matches the minus (-) sign on the PCB. Notice that the lead under the black stripe of the capacitor is shorter than the other one. Also notice that the PCB pad next to the minus sign is round, and the other pad is square. So, you are putting the short lead into the round hole and the long lead into the square hole.

- *100uF capacitor x 3*

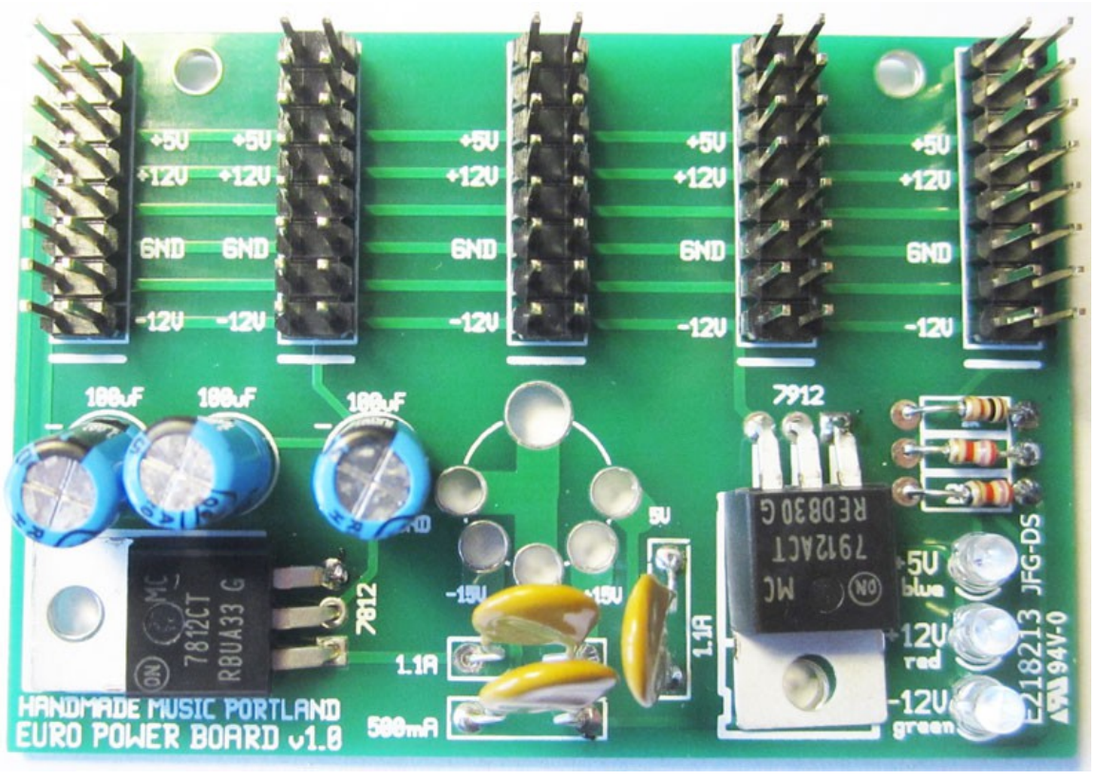


Step 5: LEDs:
Insert and solder the three LEDs. The short lead of each LED goes in the round hole, and the long lead goes in the square hole. Notice that one edge of the LED is flattened (look down the "barrel" of the LED head, as if you were shining it directly into your eyeball). This flat side should be towards the left (round hole).
Ignore the text on the PCB that specifies blue and green: only Red LEDs are supplied in this kit. You may optionally install any color LED you might have around, they are for indication only and have no voltage/current/luminocity requirements (any LED will work!).

- *Red LED 3mm x 3*

Step 6: Header pins:
Insert and solder the 5 headers. They can go in either way, there is no orientation.

- *16-pin male headers (2x8) x 5*

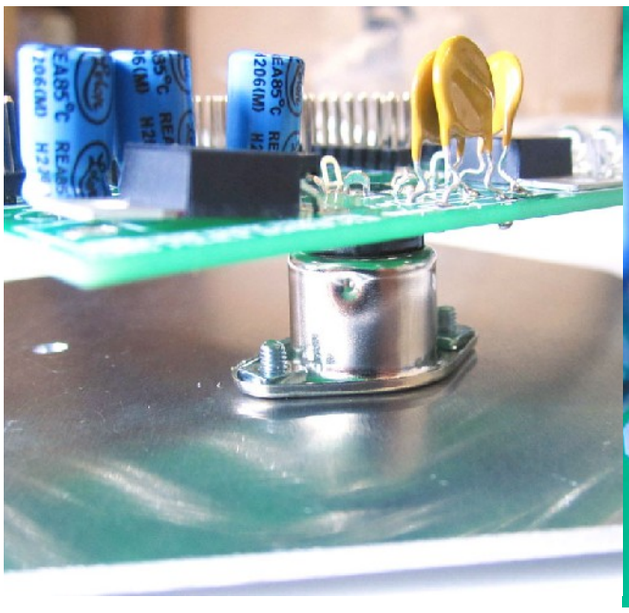


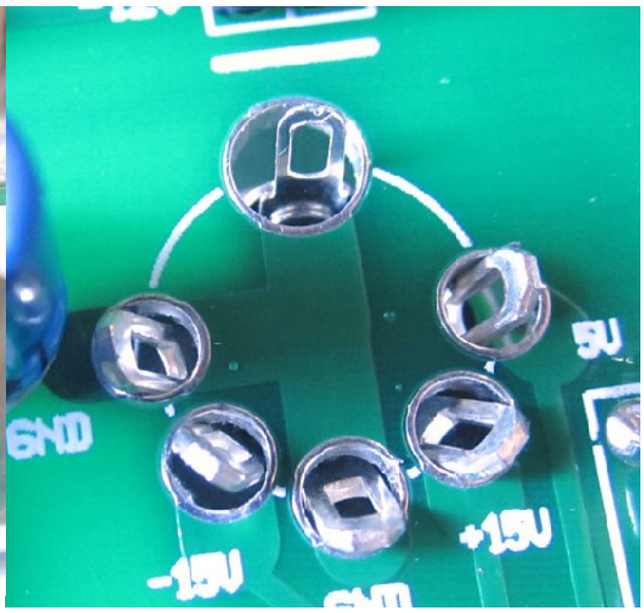
Step 7: DIN5 jack
Use two short screws and two square nuts to attach the DIN5 jack to the end cap with all the holes. You might be tempted to put the jack *through* the large hole in the end cap, but don't! The jack should fit flush on the *inside* of the end cap surface. Look at the photos below carefully. The reason for this is to allow the jack to be removed easily if you ever need to change something: in the next step we solder the jack to the PCB.

Step 8: Solder DIN5 to PCB

Insert the DIN5 jack pins into the PCB. You probably will have to wiggle the DIN5 pins a bit, and get one pin through at a time, going around in a circle. Check to make sure the PCB is approximately level to the end-cap, and that all 6 pins are sticking through the PCB (see photos).

Do not solder yet!



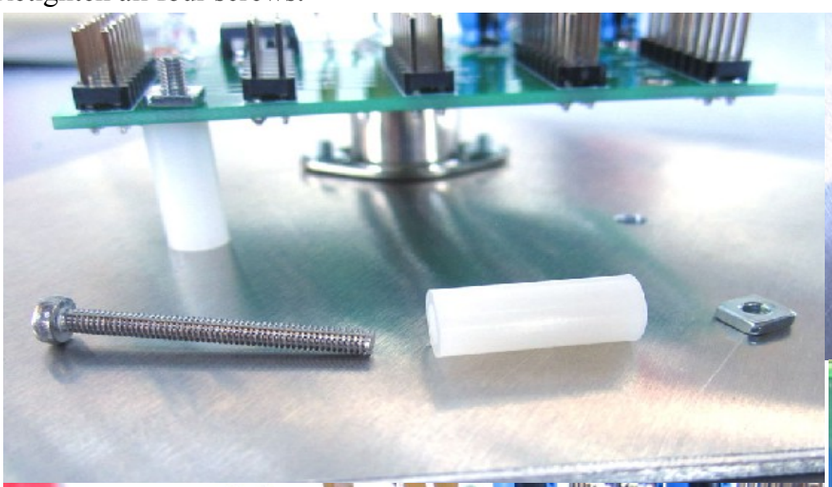


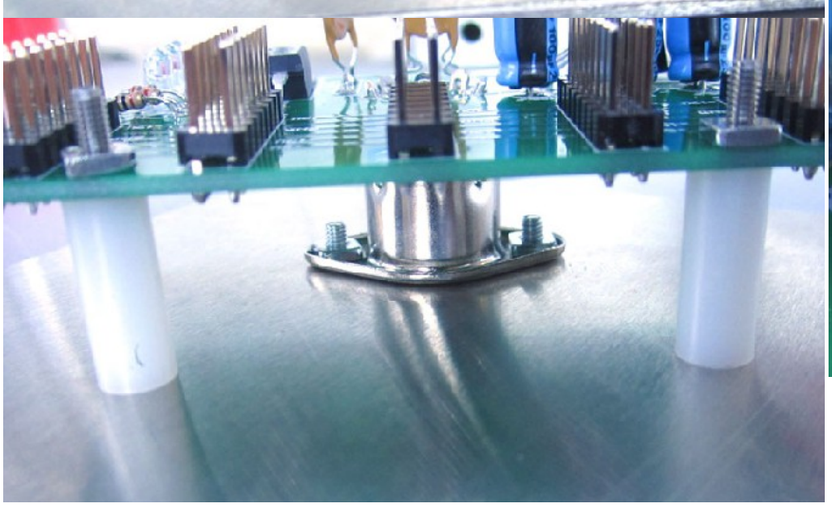
Step 9: PCB mounts

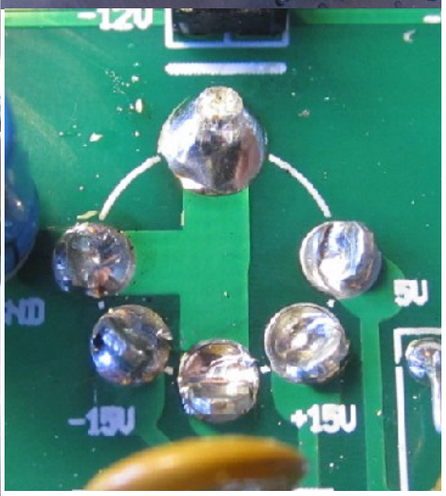
Put the two 25mm (long thin) screws partially through the small holes in the end cap. Put the spacers on the screws, and push the screws through the holes in the PCB by the header pins. Put a square nut on top of each and tighten using a small screwdriver.

- *25mm x M2.5 screw x 2*
- *Square nut x 2*
- *5/8" Spacer x 2*
-

Check to make sure the nuts are tight, including the nuts on the DIN5 jack. Check the board is level, and that all 6 pins are still sticking through the PCB. When it's good, solder the DIN5 jack to the PCB. Retighten all four screws.







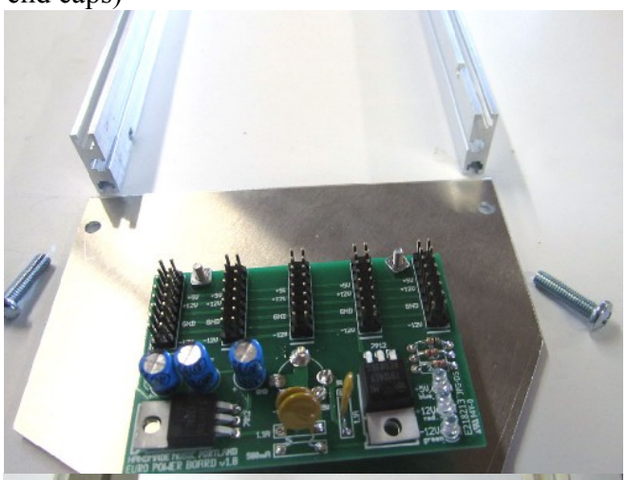
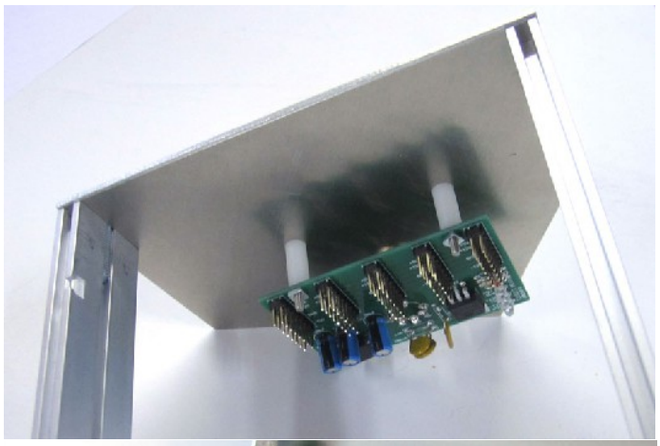
Step 10: Rails

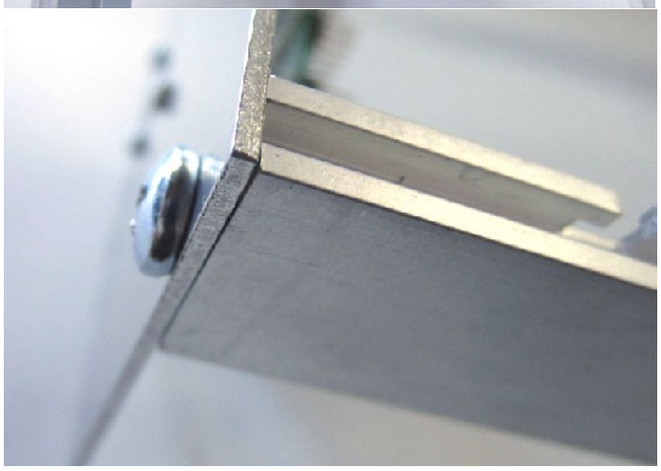
Use two of the big screws (10-32 x 3/4") to attach the endcap with the power to two of the rails.
One side of each rail has a cut-out running the entire length. This side should go to the **inside** of the rack unit. **If you put the rails in backwards (cut-out towards the outside) the rails will not be spaced correctly for standard Eurorack modules.**

The rails are not threaded, but they are soft aluminum and the 10-32 screw will cut threads as you screw it in the first time. **Go slow, and make sure the screw is not going in at an angle**.

Repeat for the other end cap.

Make sure the rails are **flush** to the edges of the end caps (you can twist and adjust them after doing both end caps)

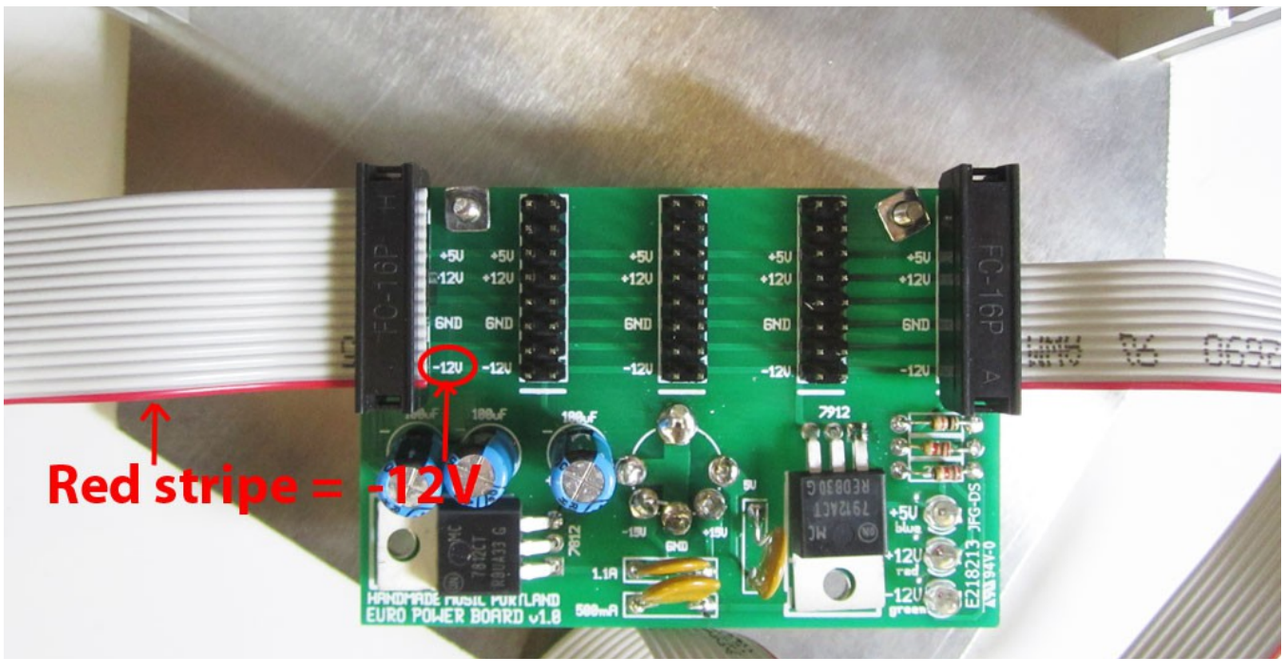


Step 11: Sliding nuts

Take the rest of the sliding nuts and divide them into two equal piles.
Slide the nuts in one pile into the top rail, and the other pile into the bottom rail.
There is a notch in each rail that the nuts fit into.
You may find it easiest to insert the nuts if you stand the rails vertically and let the nuts fall as you insert them. When you're done with a rail, put a piece of tape over the slot so that the nuts don't fall out.
Hint: If you're going to transport the case without any modules in it, the tape might not hold. Push all the screws down to the end of the rail away from the insertation notch. Then tighten a screw down on the first nut so that the nuts don't slide around when transporting.

Step 12: Power cables

Install the two power cables included with the kit. Make sure the red stripe matches the white line and the word "-12V" written on the PCB.
These power cables have six power connectors each that can be run to your modules. Some modules need a 10-pin connector, and some need a 16-pin connector: both types are supplied in this kit.
The other 3 headers can be used to power modules: just plug your modules directly into the power board using the power cable included with the module.



Ready for modules!

To power up, simply insert an IEC cable into the power brick (technically it's an IEC 60320 type C13, these are commonly used to power computers and musical equipment). Plug the other end of the power brick into the DIN5 jack. All 3 red LEDs should turn on. If one LED doesn't turn on, unplug all modules and check your soldering.

Usage

The fuses will trip if something is shorting out, a module is plugged in backwards, and/or too much current is being drawn. They will automatically reset when the condition is corrected. Maximum power draw is 1.1A on the +12V and +5V, and 500mA on the -12V.

Congrats! Have fun!