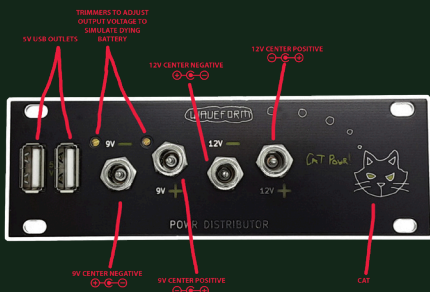


WAUFORM

M A G A Z I N E

CAT POWR & 1U EFX PEDAL ADAPTER BUILD GUIDE



CAT POWR BOM

- Faceplate (1U or 3U)
- PCB
- 4 x 2.1 DC Barrel Jacks
- 2 x red 3mm LED
- 2 x blue 3mm LED
- 2 x 16 pin shrouded header
- 4 x 6mm M3 Eurorack screws
- 2 x Vertical mount USB connectors
- 1 x SB540 Diode
- 1 x 1A 30V 40A Imax Fuse
- 1 x 1.35A 30V 100A Imax
- 1 X 9V regulator
- 2 x trimmer potentiometers
- 2 x 16 PIN Eurorack cables
- 2 X 2.1mm DC extension cables

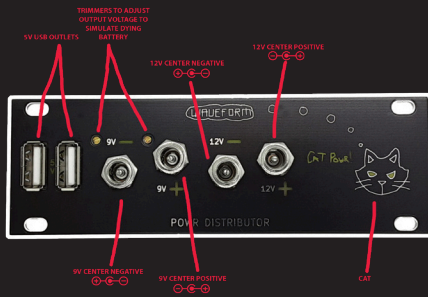
1U EFX PEDAL ADAPTER

- 1 x Faceplate
- 1 x PCB
- 2 x jacks
- 2 x potentiometers
- 1 x 10 pin shrouded header
- 2 x ¼" mono jacks
- 4 x tinned wire
- 1 x Eurorack cable
- 4 x M3 screws`



DIY PROJECT: 1U/3U CAT POWR & 1U EFX PEDAL ADAPTER

BY IAN RAPP



1U/3U CAT POWR

The array of delay, reverb, fuzz, phaser, etc., effects pedals that are available has meant that I've always used pedals with my modular. I realized though, that when I'm jamming with friends, playing a show, or traveling, that bringing along the numerous power supplies, cables, adapters, and power strips can be a hassle. In the effort to consolidate, free up space, and ease my mind I wanted a simple way to integrate pedals from my rig in a 1U space (Cat Powr also comes as a 3U module), hence the Cat Powr Power Distributor and Pedal Adapter were born!

Taking power from your existing power supply, Cat Powr supplies +12V, -12V, +9V, and -9V to power your pedals and other external devices. Both of the 9V outputs also have trimmers so that you can adjust the output to simulate dying batteries—a fun trick with certain fuzz pedals—for more sonic possibilities.

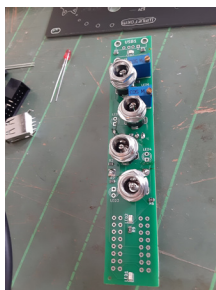
Cat Powr also has two USB power outlets to run low powered devices like a Teenage Engineering Pocket Operator (I use +5V MyVolts RipCord and a MyVolts AAA ReVolt for this), to charge your phone, or run some LED lights to brighten up a space.*

The Pedal Adapter helps you send your modular signal out of your rack and into your pedals, and then back, giving you to tweak the levels at both steps as to not overload your signal going into your pedals, to boost the signal back to modular level on the way back in. We've also used 1/4" jacks going to and from your pedals so no additionally adapters or special cables are needed to do so.

*Don't exceed 1A with the USB outlets. Also note that your Eurorack power supply must have +5V for the USB connectors to work, and the USB outlets do not pass any data. If your rack doesn't supply the +5V, there are available adapters that you can find to do so.

First, mount all the DC barrel jacks on the top of the PCB and make sure they are flat on the PCB, but DO NOT SOLDER THEM IN YET. You may have to bend the legs a bit, that's ok.

Solder in the diode on the bottom of the PCB, making sure the orientation is correct.



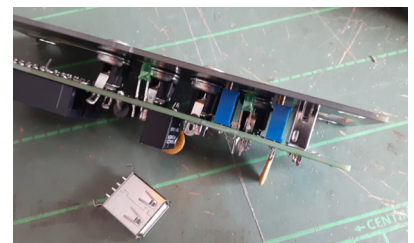
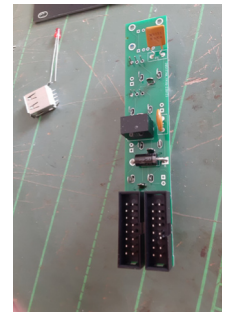
to line up with the line on the PCB. Clip the excess leads. Solder in the 9V regulator on the bottom of the PCB, making sure that it's facing the correct way. It should fit perfectly in the outline indicated on the PCB.

Place the trimmers (RV1 and RV2) on the top of the PCB, confirming that they are in the correct orientation. The screw of the trimmer should match with the screw outline on the PCB and should be near the edge of the PCB. older in one leg of each trimmer.

Insert the two shrouded headers on the bottom side of the PCB and make sure the gaps in the headers line up with the GAP on the outline of the PCB. Carefully solder each header into place, making sure to avoid contact with the surface mount components.

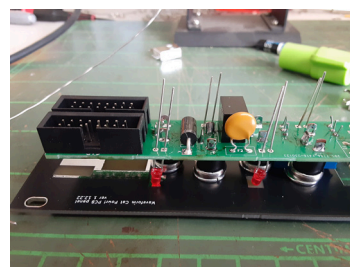
Insert the fuses into the bottom of the PCB (the square fuse into F1 and the round fuse into F2) and solder into place. Clip off the excess leads.

Insert the LEDs into their respective spots, with the red LEDs going into the 9V and 12V center positive holes to illuminate the "+", and the blue LEDs going into the 9V and 12V center negative holes to illuminate the "-". Use the faceplate for reference if needed. The short leg of the LED goes into the



square pad on the PCB. Double check this. DO NOT SOLDER THE LEDs INTO PLACE YET.

Remove the nuts from the DC barrel jacks, but leave the wash-ers on. Attach the faceplate and screw the washers back onto the jacks as much as you can. Maneuver the trimmers so that the screws go into their respective holes and the faceplate lies flat. Solder in the trimmers and cut the



screws fully, now that the trimmers are properly seated.

Position each LED so that it points into the center of the bare yellow part of the underside of the faceplate that it will be illuminating, and solder the LEDs in place.

You may want to just solder one LED leg at first, and then use the LED leads to maneuver the LED into the correct place, melting the solder as necessary to get the correct placement. Solder all of the DC barrel jacks and LEDs into place and trim any excess leads.

At this point, plug in the module to make sure all of the LEDs light up. Using one of the supplied DC extension cables, test each output using a digital multimeter to make sure that each of the DC outlets have the correct voltage. Note that since we have trimmers on both 9V outlets, they will need to be adjusted to 9V, if desired, and will therefore probably read less than 9V at this point. This is normal.

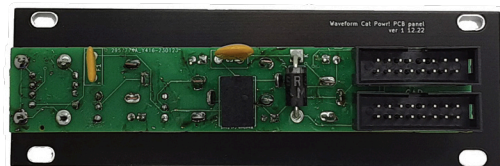
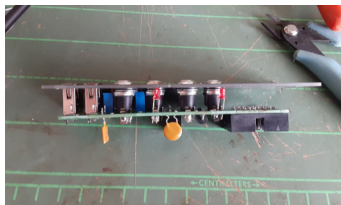
Once confirmed that the unit works as it should up to this point, unplug the module and solder in the USB connectors. With needle nose pliers slightly straighten out the side prongs of the USB connectors so that they will fit through the slots of the faceplate. Maneuver the USB connector into place on the PCB, being careful not to bend any of the middle leads. You may need to bend the side prongs a little more, and maybe back again, and use some finesse to make this happen. Once properly inserted, carefully solder the prongs into place, and then the middle four pins. Do this for both USB connectors.

Double check your work carefully. Look for solder blobs, unsoldered pads, bridged pads, etc. Neatness counts...make it neat.

Plug the module back in, check that your USB connectors are supplying 5V by plugging something in, and away you go. Remember, if your Eurorack power doesn't supply +5V then the USB connectors will not work.

Always make sure to double check your pedal/device's polarity before you plug it into the Cat Powr. Make sure you understand what center positive and center negative mean. The red "+" means center positive, and the blue "-" is center negative. Again, double check all of this. You don't want to fry your sweet gear!

* This project is available as a 3U module as well.



1U EFX PEDAL ADAPTER

The Waveform 1U Pedal Adapter solves a few problems we kept encountering when trying to interface our pedals with our rig. The first is that sometimes the modular level is too hot for pedal input. The Pedal Adapter solves this by using an attenuator to tame this when needed, as well as a boost (when needed) to go back from your pedals to your modular.

The other problem is that we are drowning in cables and adapters of all sorts already, so we made it easy to interface our adapter with your pedals by using 1/4" jacks to go to and from your pedals. Easy peasy. Just like the build for this module...easy peasy.

The Pedal Adapter is 14HP, and has a black and silver faceplate. Instructions on how to build this are located in our Build Guide section.

First, we need to pull a few pins out of the shrouded header. This is so that the potentiometers can fit nicely on the other side. Using small pliers, pull the three middle pins in the back row out of the header, the row furthest from the gap. The pins are not glued in or anything, and should come out fairly easily with a confident tug.

Next, solder in the header on the bottom side. Make sure to solder it in the correct orientation, with the gap in the header matching the gap outline on the PCB.

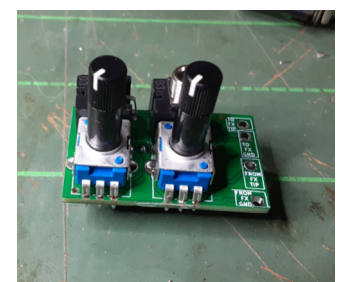
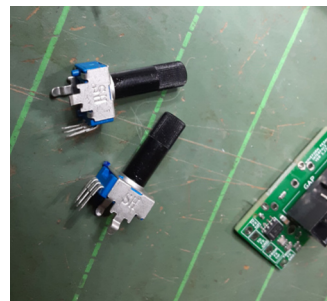
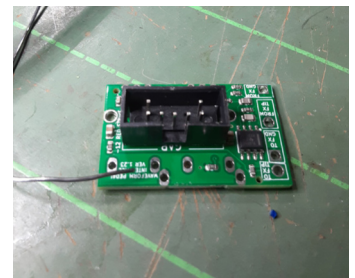
Solder in the jacks on the topside (the side with the outline) of the PCB. Make sure they lie flat on the PCB.

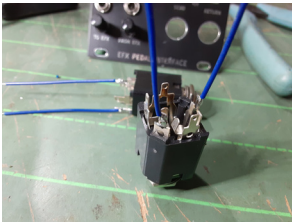
Next, we need to clip one of the side tabs on each of the potentiometers; the left tab on one pot, and the right tab on the other pot. These clipped pots will face each other when the potentiometers are placed in. The idea is to make sure the pots sit perfectly flat on the PCB and you'll want to leave a bit of the tab to be able to solder in from the top side. It's better to clip less at first, so you don't clip too much.

Snap the potentiometers in place, one at a time, and solder into place. Make sure they are flat on the PCB, and solder the clipped tab from the top side. This will be a little tricky to do for the second pot, but it's doable.

Attach the PCB to the faceplate using the jack nuts to do this.

Solder wires to the 1/4" jacks. The angled side of the jack is the ground lead, and the side opposite to the right is the input. You can insert a 1/4" cable and do a continuity test to make sure





you're soldering to the correct lead, but use the photo for reference.

Insert the 1/4" jacks into the faceplate and secure with their nuts.

All that's left to do is solder the wires from the 1/4" jacks to the appropriate pads on the PCB. The "TO FX TIP" goes to the input of

the "Send" jack, and the "FROM FX TIP" goes to the input of the "Return" jack. The ground wires attach to the Ground pads on the PCB, and conversely, you can solder the ground lead from the Return jack to the ground lead of the Send jack, so long as one of those also connects to either Ground pads on the PCB. This is what is shown in the photo.

