PROJECT NAME

INPUT/OUTPUT MODULE

DIY GUITAR EFFECTS

BUILD DIFFICULTY
Easy

DOCUMENT VERSION
1.0.0 (2019-02-09)

INTRODUCTION

The assembly system from the kits is now available as a standalone mini-kit that can be used for any of the new 125B projects. The input/output module uses wire assemblies and headers in conjunction with PCB-mounted components for a modularized approach to pedalbuilding.

Wire measuring, cutting, stripping, and tinning is eliminated entirely from the build process, and no desoldering is needed if the circuit ever needs to be removed from the enclosure for troubleshooting or modification.

Please be aware that this module is not compatible with the older 1590B projects, and is not compatible with projects from other designers. It can only be used for Aion FX projects in the new 125B format.

PACKING LIST

This is a list of all the parts that are included with the I/O module kit.

If you find that any parts are missing or damaged, please fill out the Missing Parts form.

NAME	QTY
3-strand wire assembly, 70mm	2
4-strand wire assembly*	1
3-pin wire assembly header	2
4-pin wire assembly header	1
9-volt battery snap**	1
1/4” phone jack, PCB mount	2
2.1mm DC jack, PCB mount	1
Mounting nut for jack, 0.54”	4
Outer washer for jack, 0.6”	2
Star washer for jack, 0.5”	2
I/O PCB (choice of color)	1

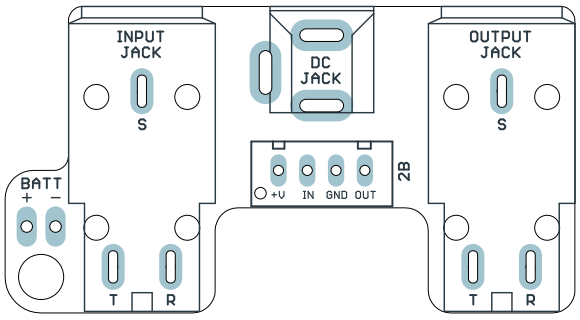
* Wire assembly is 108mm length for standard-size PCBs with space for battery, or 122mm length for large-size PCBs with no battery space (e.g. the Graviton or Tempest).

** 9V battery snap not included for large-size PCBs.

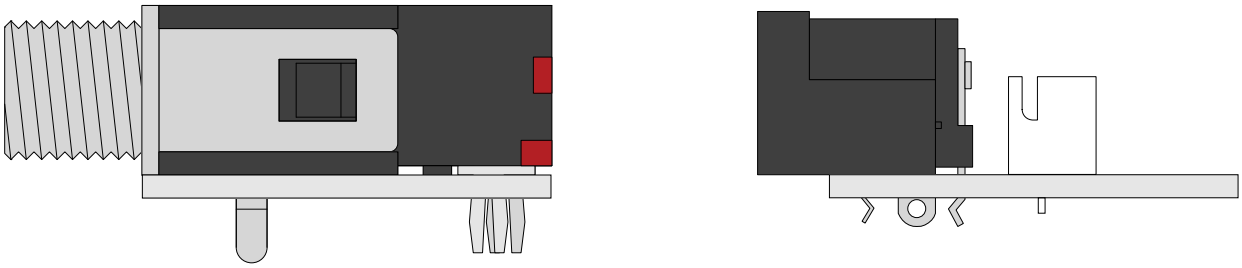
INPUT/OUTPUT PCB

PARTS

- Input & output jacks
- DC jack
- Wire header
- 9V battery snap



Get the two input/output jacks, the DC jack and the wire header and snap them in place on the PCB. The board is designed for them to fit securely, so you may have to press down hard to get them to snap in.

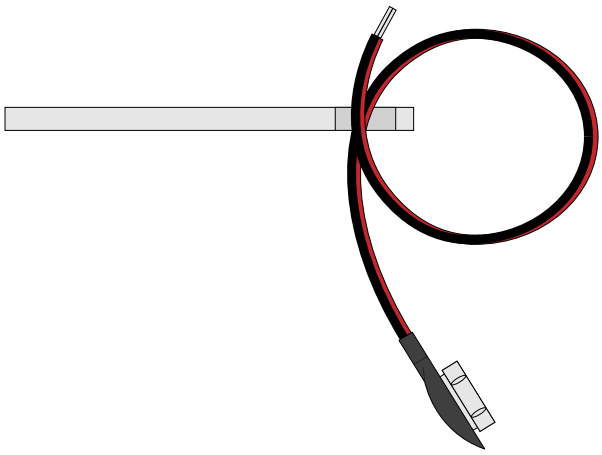


After you've soldered everything, make sure to **snip the leads on the I/O jacks as close as possible to the PCB**. There's not a lot of clearance between the bottom of this board and the top of the main PCB once everything is in place, and you don't want the pins to short against anything on accident.

Next, we'll hook up the 9V battery connector. **This is optional.** Not everyone uses batteries. Also note that the 9V battery snap is not included if using the kit for a large-format board such as the Graviton or Tempest because they do not have space for a battery.

STEP 1

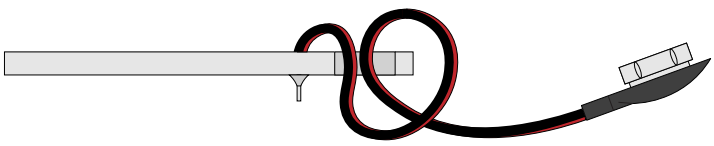
Thread the battery snap leads through the strain-relief hole twice so it forms a single loop.



STEP 2

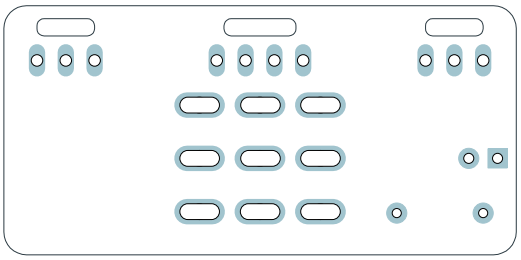
Bend the exposed wires back down and solder them into the pads. Red is positive (+), black is negative (-). After soldering, pull it tight.

For even more strain relief, you can thread the snap through the loop to form a knot. (not shown)



FOOTSWITCH PCB

PARTS
3-strand wire assembly (2)
4-strand wire assembly



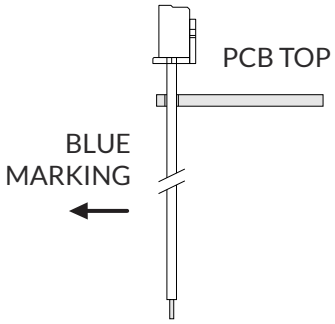
Next, we'll solder the wire assemblies to the footswitch board. (These come with the project PCB and are not included in this kit.) Do the wires before soldering the footswitch and LED to the board.

There will be one longer assembly with 4 wires and two shorter ones with 3 wires. The longer one goes in the middle and the shorter ones go on the left and right sides. The wire assemblies should then be soldered to the footswitch board as shown.

STEP 1

First, thread the wire through the strain-relief slots, with the blue side facing outward and the PCB silkscreen facing up.

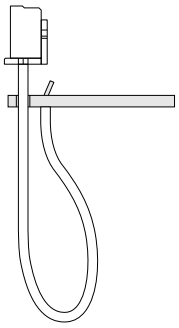
For now, pull it down through the strain-relief slot as far as it can go.



STEP 2

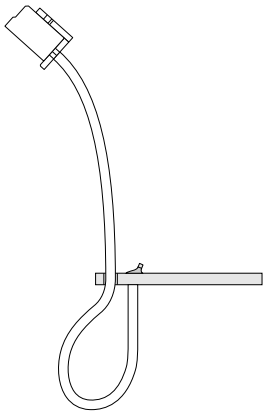
Next, bend the wires back upward and fit the ends of the wires into the solder pads.

On the top side of the PCB, bend the exposed wires backward so it holds the wire in place. Pull the header back up through the slot partway.

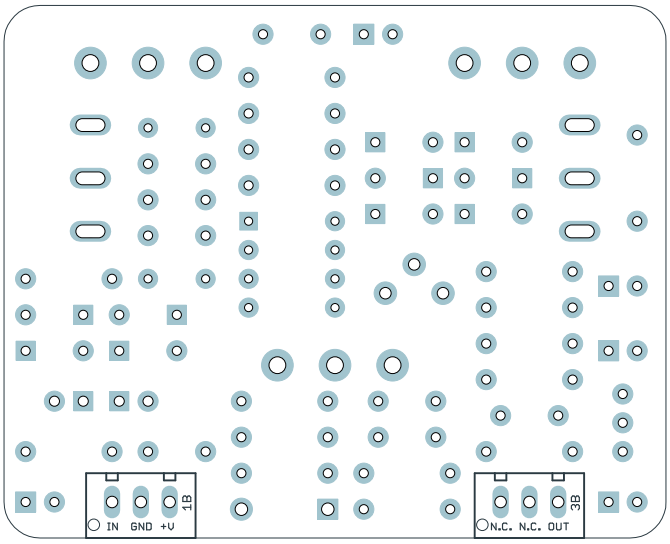


STEP 3

Then, solder the wires from the top. This is the trickiest part of the whole build. You want to solder the pads without touching the iron to the wire insulation and risking burning through it. It helps to use a sharp or narrow tip on the soldering iron.



MAIN PCB, WIRE HEADERS

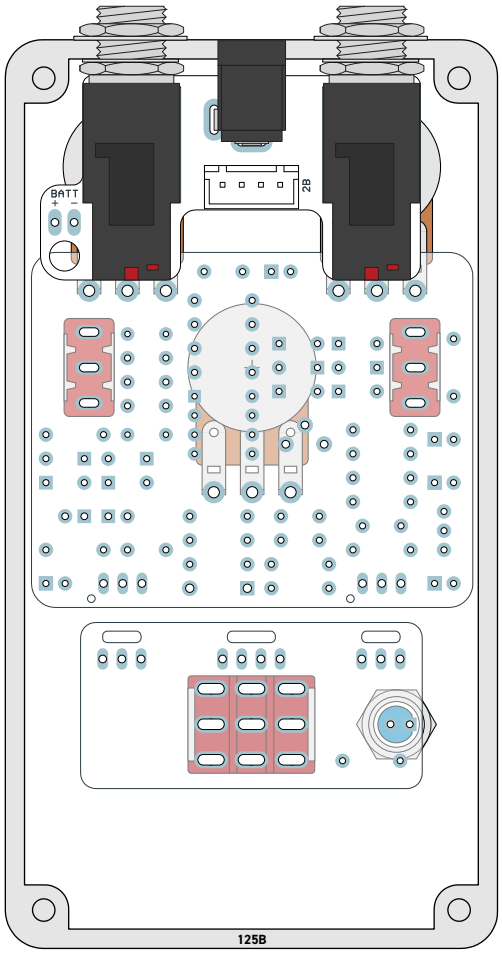


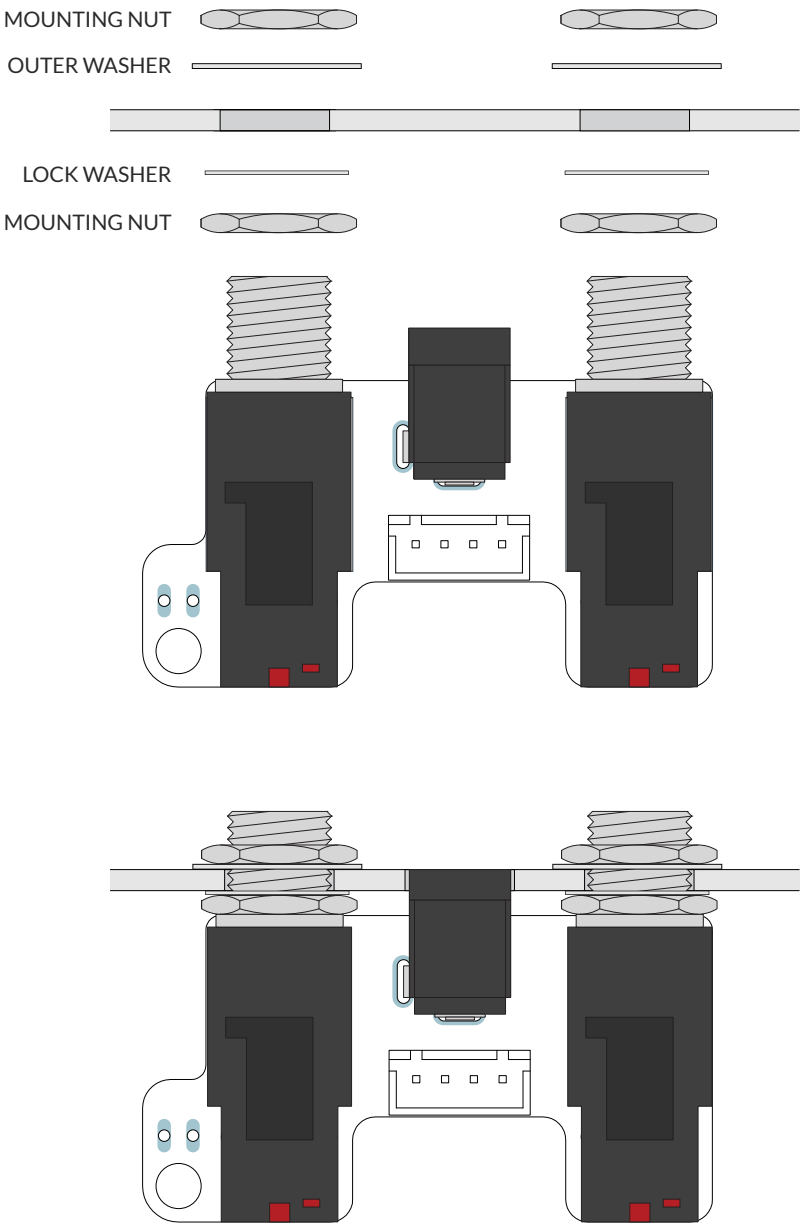
Install the two 3-pin headers (wire connectors) on the main PCB as shown above. These have a polarity pin, so as long as they are pressed all the way down, there's only one possible way to install them. They do fit pretty tightly in the holes, though, so press firmly.

FINAL ASSEMBLY

After installing the main board and footswitch board in the enclosure, affix the input/output PCB to the north-facing panel of the enclosure as shown.

Note the use of two mounting nuts on each of the jacks, one inside and one outside. The inner nut acts as a spacer to set the DC jack flush with the outside of the enclosure. The inner nuts should be threaded as far down as they can go.

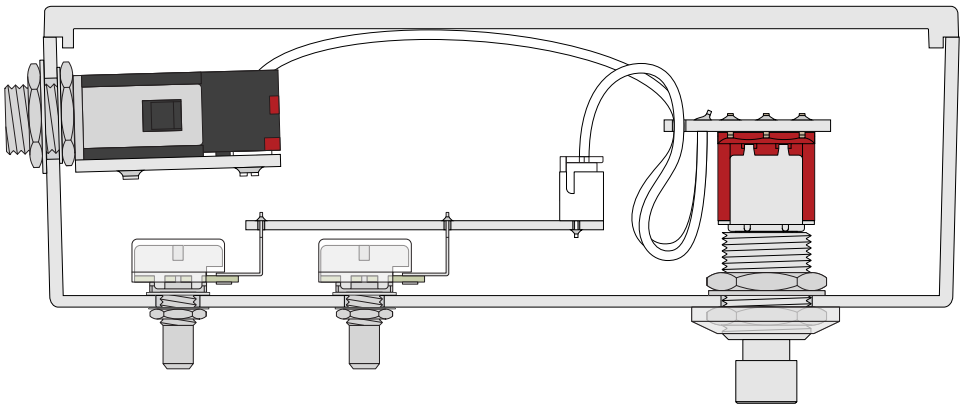




FINAL ASSEMBLY, CONT.

Once all three boards are installed in the enclosure, just plug the 3 wire assemblies into their respective headers and make sure they're secure. That's it!

Here is a cross-section of the inside of the completed pedal.



SUPPORT

Aion FX does not offer direct support for these projects beyond the provided documentation. Replacements and refunds cannot be offered unless it can be shown that the circuit or documentation are in error or that the included components are non-functional.

Where to get help

The two best places to ask for help are the DIY Stompboxes forum and the DIY Stompboxes Facebook group. Both communities have thousands upon thousands of members and they are very accommodating to new builders.

When posting a troubleshooting request, always include the following:

1. A thorough description of the problem you are experiencing
2. A photo of the inside of the pedal
3. A list of all the measured voltages of each of the pins of the ICs and transistors

While we cannot offer direct, private support, you may send a link to your public troubleshooting thread to Aion FX using the contact form on the website. There is no guarantee that we will be able to join the discussion and help solve your problem, but this improves the chances.

It benefits the whole community if the troubleshooting process is public because then people who have the same issue in the future may come across it when searching. And if you do get help, remember to pay it forward! The best way to learn new skills is to help others. Even if you've only built one pedal, you have more experience than someone who is brand new, so you have something to offer.

RESALE TERMS

These kits may be used for commercial endeavors in any quantity unless otherwise noted. It's okay to sell individual builds locally or online, or even to offer a service to build pedals based on these kits.

No direct attribution is necessary, though a link back is always greatly appreciated. The only usage restriction is that you cannot "goop" the PCB or otherwise obscure the source. In other words: you don't have to go out of your way to advertise the fact that you use Aion FX kits, but please don't go out of your way to hide it. The guitar effects industry needs more transparency, not less!

DOCUMENT REVISIONS

1.0.0 (2019-02-09)
Initial release.