BASTL
INSTRUMENTS

CITADEL - Assembly Guide

bastl-instruments.com

INTRODUCTION

This guide explains how to build the CITADEL module from Bastl Instruments.

Basic soldering skills and the ability to recognize electronic components are highly recommended. If you've never soldered before, start with this tutorial (see especially *The Ideal Solder Joint* on page 18).

The kit includes high-quality lead-free solder to make the job easier.

The CITADEL uses a single PCB with SMT parts already soldered. All components for the kit are packed in separate bags. Refer to the Bill of Materials below for a complete list.

BILL OF MATERIALS

Component	Quantity
Citadel PCB	1
Potentiometer B100k T18	7
Connector Jack WQP518MA 3.5mm Vertical Mono	22
Connector Jack PJ366ST 3.5mm Vertical Stereo	2
Switch TS-4A-TFCQ-E SP3T Toggle Vertical	2
Button 12.4x12.4x7.4mm Squared Head With Black Round Cap	2
Voltage Regulator TSR 1-2450E SIP3	1
Pin Header Male 2x5	1
Faceplate Citadel PCB Printed	1
Knob Pot 6 mm Black White Aluminum 10 mm	6
Knob Pot 6 mm Black White Aluminum 15 mm	1
Nut M6 Metal	24
Washer M6 Metal	24
Nut M8 T18 Metal	7
Power Cable 10x16 pin	1

BEFORE STARTING THE KIT

Prepare the following tools:

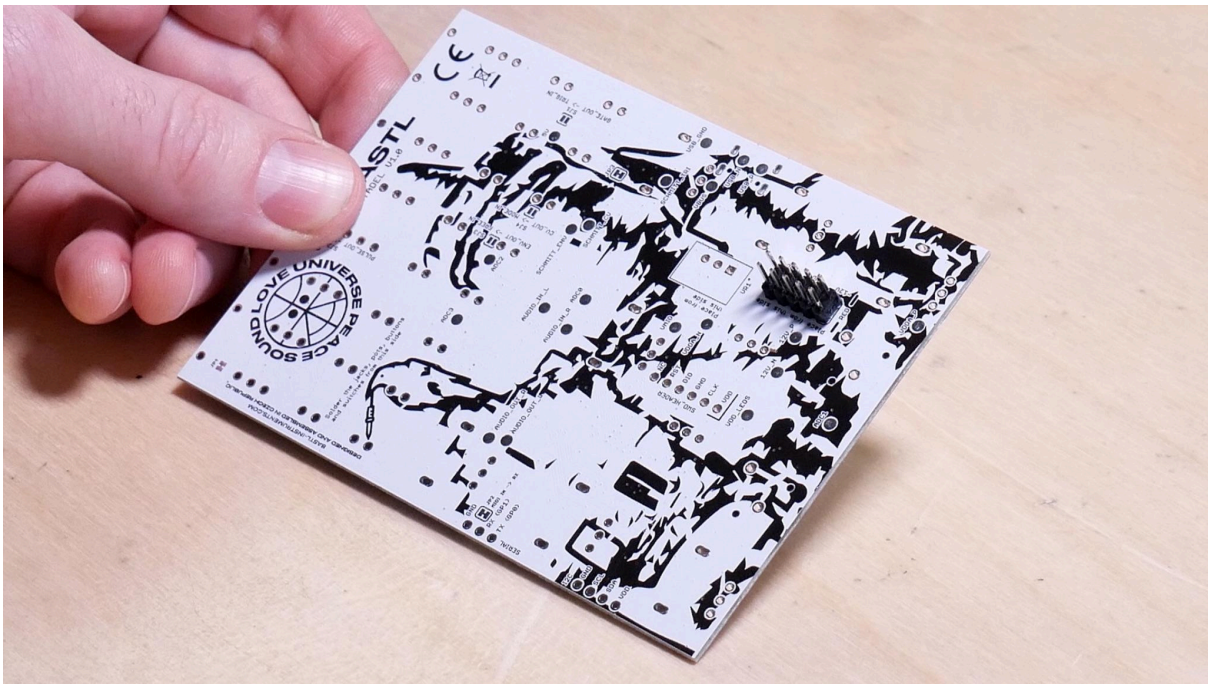
- Temperature-controlled soldering iron (ideally 65 W+)
- 3D-printed key (included in the kit)
- Protective eyewear
- Pliers (optional)
- Isopropyl alcohol + small clean brush (optional)

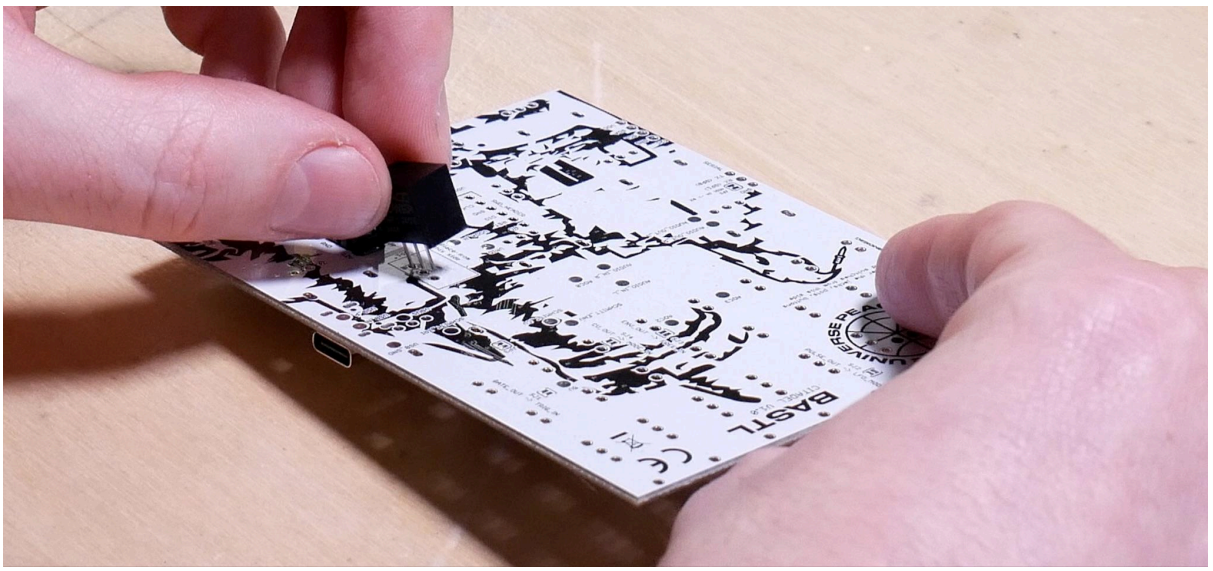
Work in a clean, well-lit, and ventilated space to avoid accidents or losing tiny parts. Read the entire guide once before you start soldering so you understand the overall flow.

SOLDERING

BOTTOM SIDE: POWER CONNECTOR + VOLTAGE REGULATOR

Start on the bottom side of the PCB. Insert the **power connector** from the bottom and solder it from the top. Do the same with the **voltage regulator**.





TOP SIDE: BUILDING THE BASE

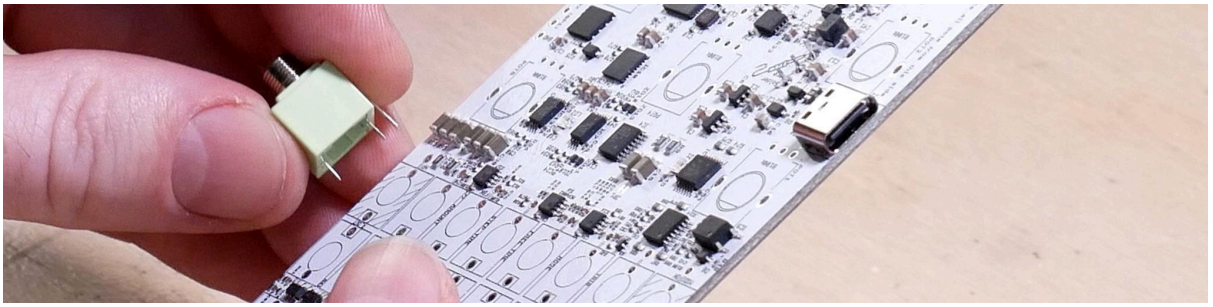
Flip the board to the top side. You'll first install a few components that will act as a stable base for the rest of the build - so take your time and solder them cleanly.

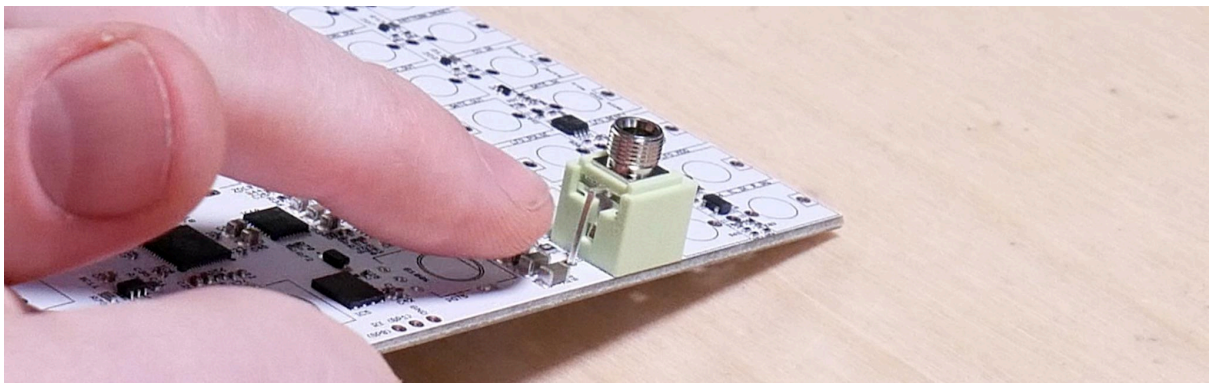
1. Stereo jacks (2 pcs)

These are the only stereo jacks, so identify them first. Place them in the hatched squares on the edge of the PCB. **Check the orientation** of the outer wire in the reference photo.

Pro tip:

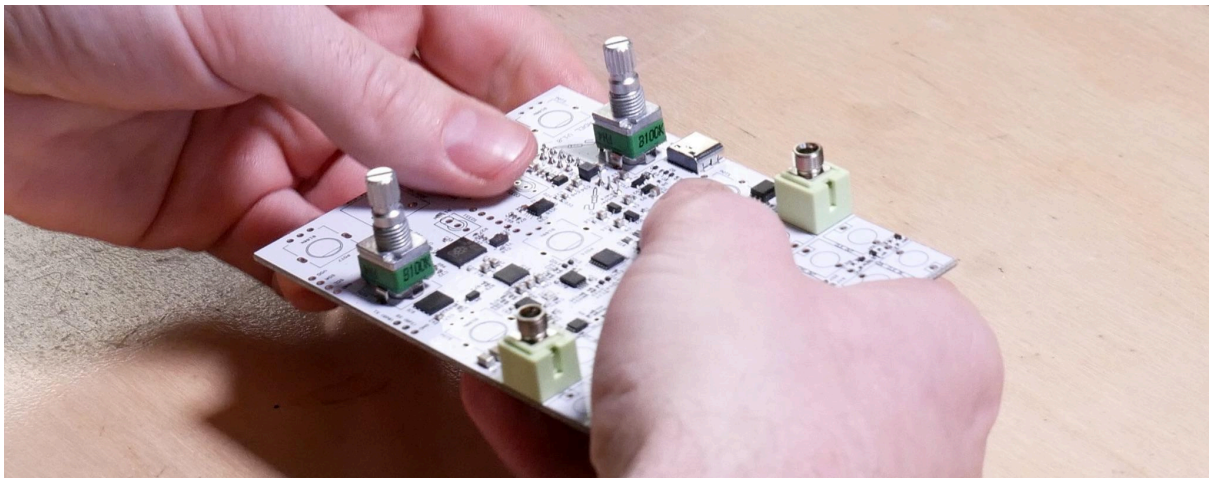
- Solder only **one pin** first.
- Check for any **gap** between the jack and PCB.
- **Re-heat** and push down if needed.
- Once aligned, solder all remaining pins.





2. Two potentiometers

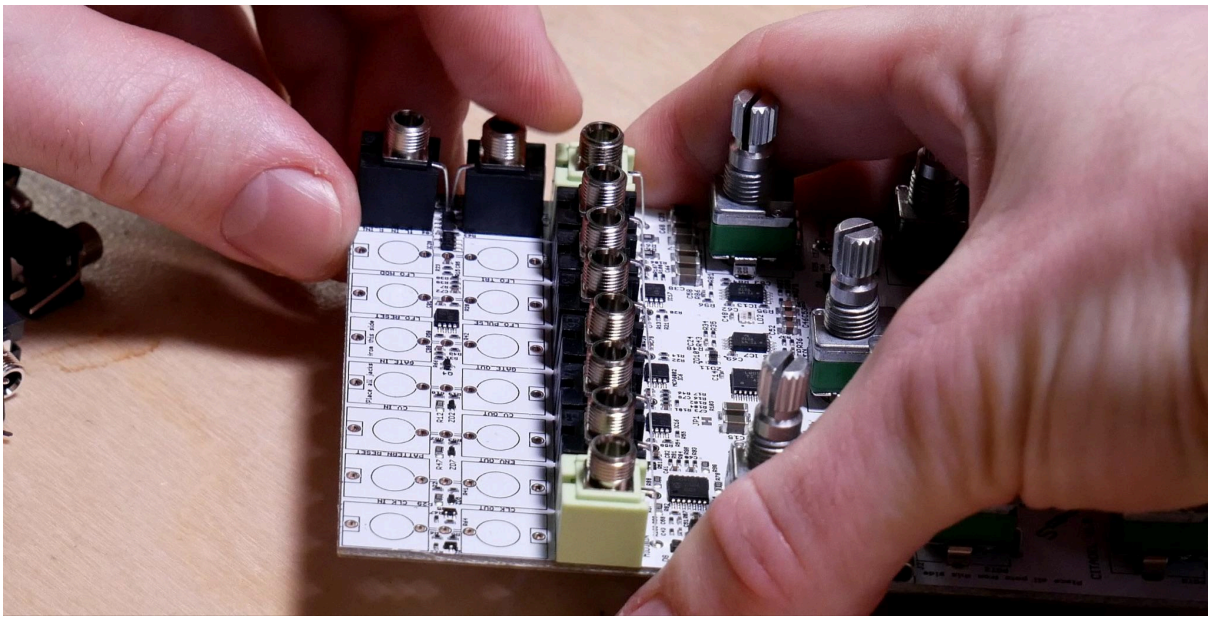
Insert at least **two potentiometers** (we recommend the center row - see the picture below). Use the same “one-pin first” alignment method as with the stereo jacks.

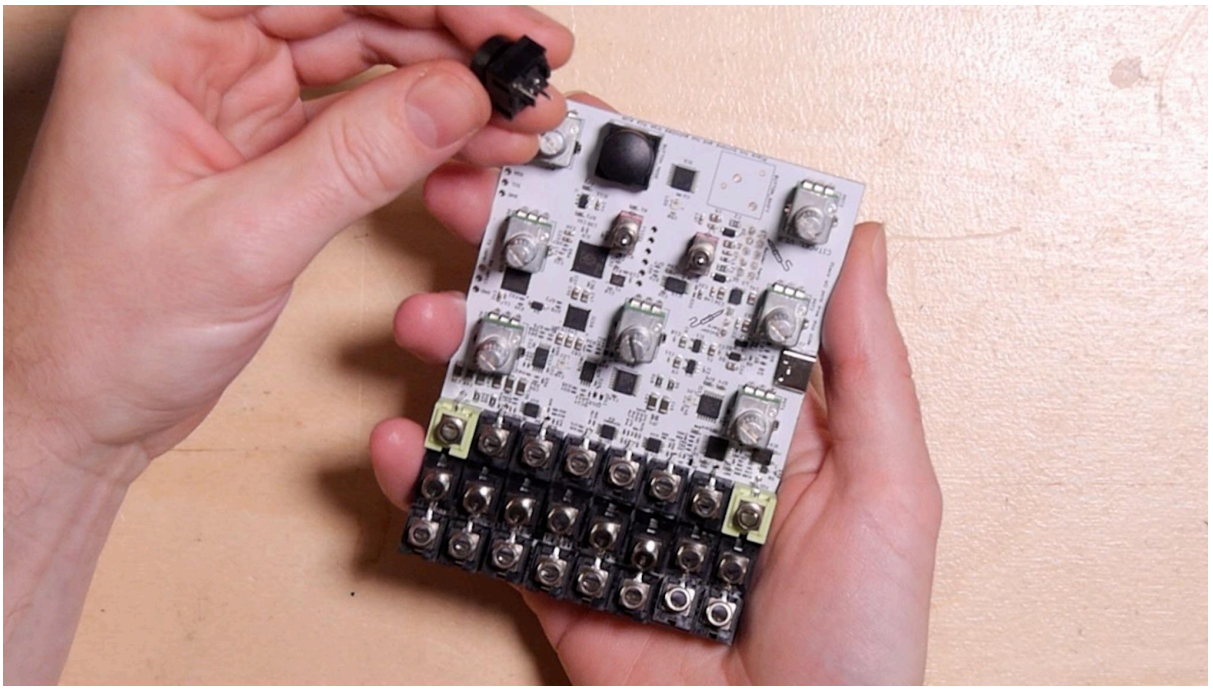


These components now create a solid base for soldering everything else in a single pass. Before doing that, carefully insert the remaining parts.

INSERTING THE REST OF THE COMPONENTS (NO SOLDERING YET)

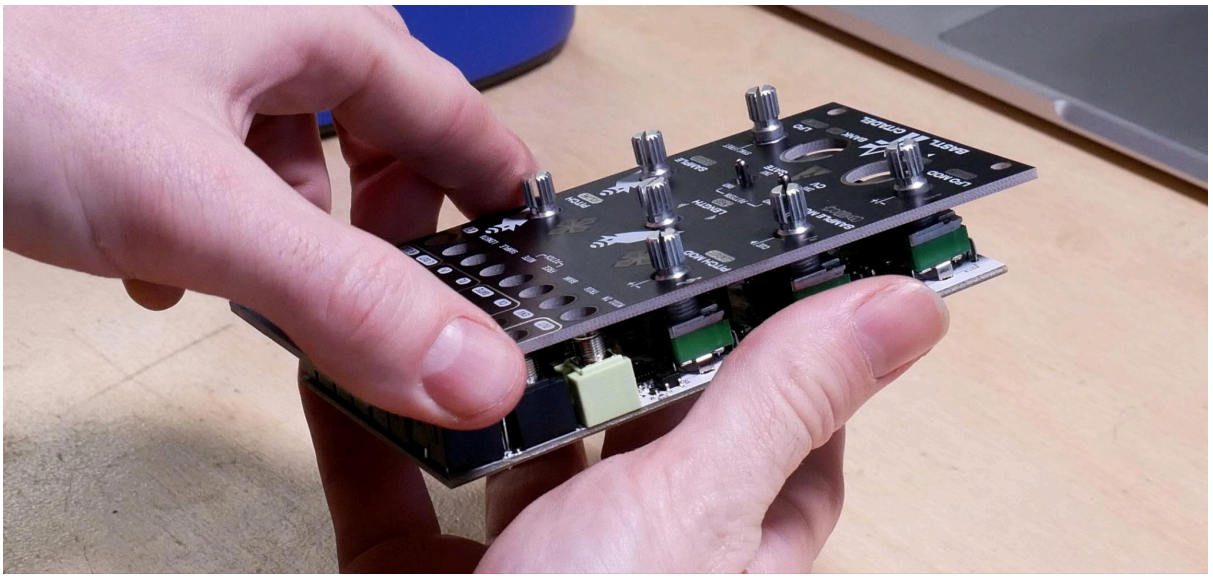
1. Insert the **rest of the potentiometers**
2. Insert **both switches** (either way)
3. Insert **all mono jacks**
    - **Important:** In the top two rows, pairs of jacks share their outer legs in one hole (see photo)
4. Insert the **two buttons**

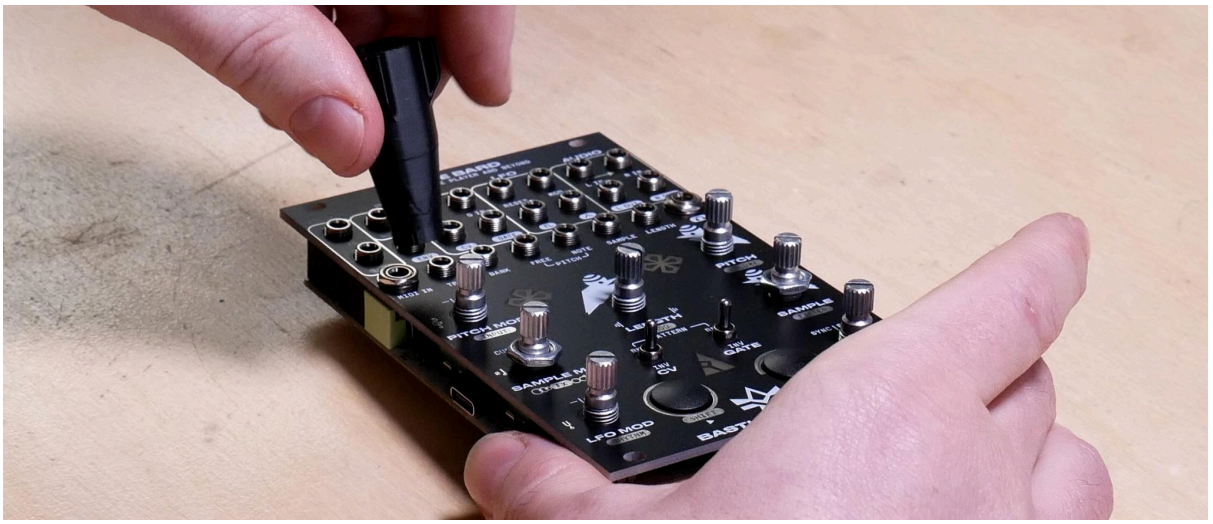




FACEPLATE ALIGNMENT & FULL SOLDERING

Place the **faceplate** on the module and screw on the **nuts** for the stereo jacks and the potentiometers that are already soldered.



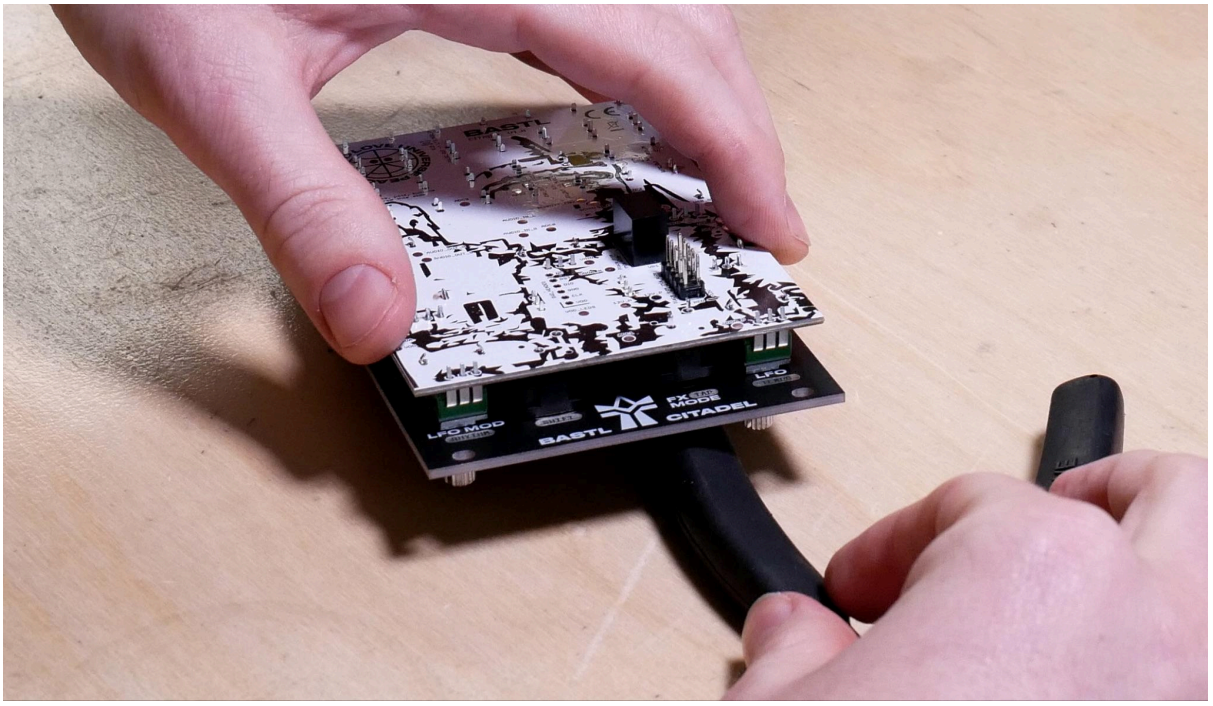


Align and solder two **mono jacks in the corners**:

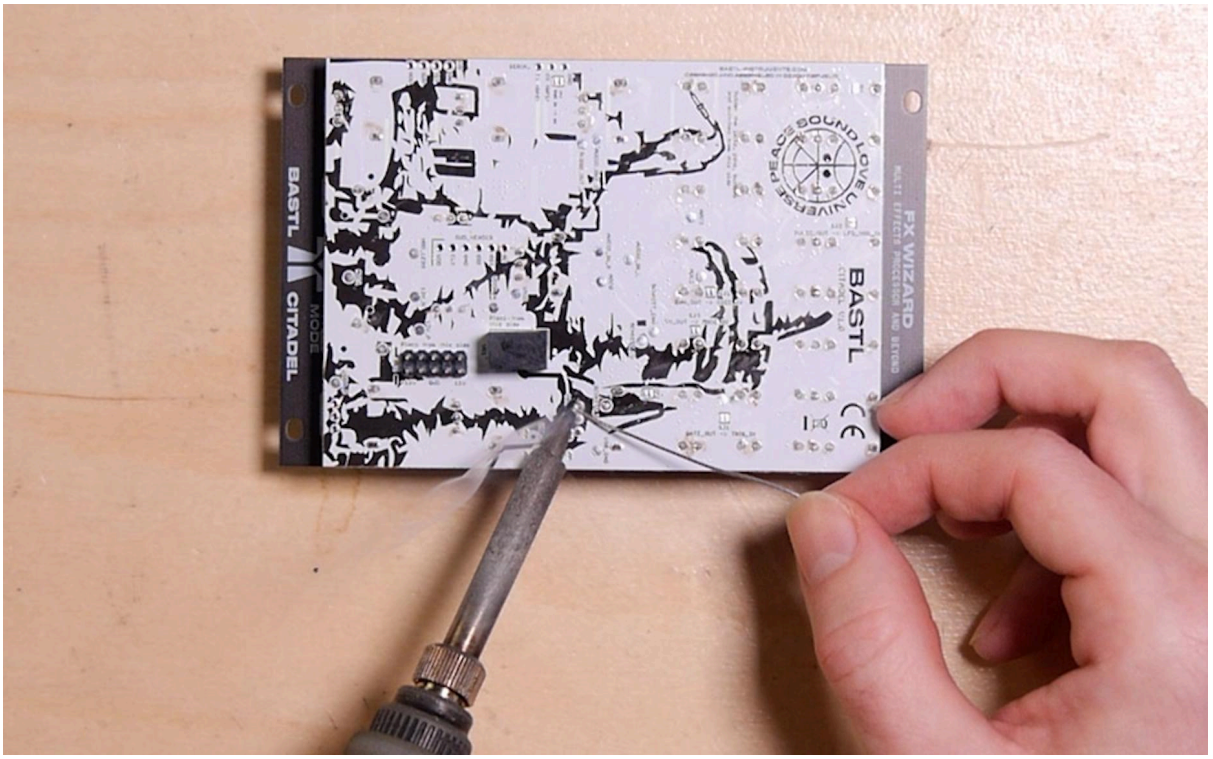
1. Solder one leg of the mono jack
2. Check for gaps and re-heat if needed
3. Once aligned, tighten its nut

Before soldering everything else, fix the **buttons**:

- Press the button flush to the PCB (better use an object on the table - see the picture below)
- Solder one leg of the button first
- Check and re-heat if necessary



Double-check alignment for all components. If everything sits tight and flat, proceed to solder all remaining joints.



CLEANING (OPTIONAL) & FINAL CHECK

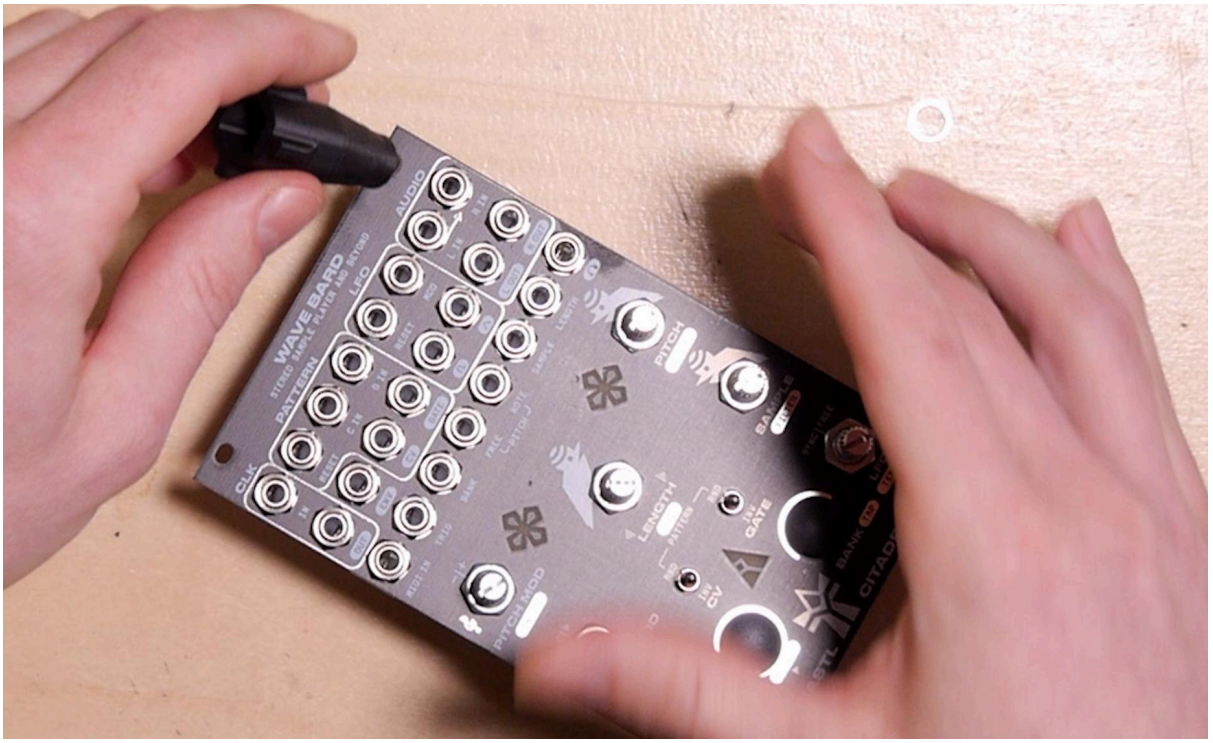
If you want a clean PCB, you can wash off flux with isopropyl alcohol:

- Unmount the faceplate
- Apply alcohol on the PCB with a brush (avoid getting liquid inside the potentiometers!)
- Let it sit a few seconds, then brush off the residue and let the board dry
- Repeat if necessary

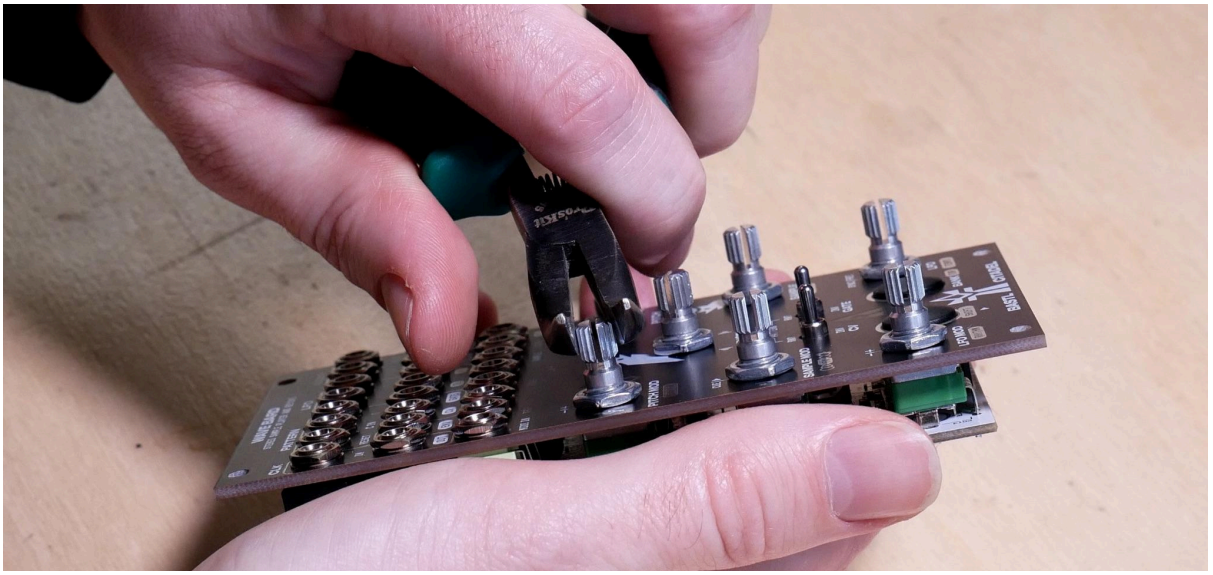
Now is the perfect time to inspect your work and confirm all joints look good and all parts are in the correct place.

FINAL ASSEMBLY

Install the remaining nuts and washers.



Before attaching the **knobs**, you may need to use pliers to gently press the potentiometer shaft inward so the knob can slide on nicely.



And now you're done. **Congratulations!**

Before turning the module on:

- Make sure your system is **powered off**.
- Double-check the ribbon cable polarity: the **red stripe = –12 V** on both the module and the bus board.

Check our website for manual download and more info about the module:
https://bastl-instruments.com/eurorack

TROUBLESHOOTING

If you run into any issues, you can contact us here: diy@bastl-instruments.com

We also offer a repair service for DIY builds.