CURIOUSER

DIY BUILD DOCUMENT V1.3

APOLLO VIEW ∿

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SPECIAL THANKS

Thomaas Banks	Thomaas Banks
Ben Wilson	DivKid
Sam Battle	Look Mum No Computer
Tom Wiltshire	Electric Druid

TOOLS

ESSENTIAL

- Soldering Iron - a solder station with temperature control is best. Some components on this build are connected to the ground plane and require a large amount of heat. A low Wattage soldering iron that plugs directly into the power supply will not be good enough to achieve an effective solder joint. When soldering pots and jacks, 370°C is best; for everything else, 340°C (this is dependent on the solder you use, so check out your solder's data sheet).

- Solder - We find thin is best, around 0.6mm. We use a lead-free rosin core solder.
- Solder Mat
- 7mm & 10mm Nut drivers
- Bananut driver
- Side Cutters
- Pliers
- Solder Sucker
- Watchmaker screwdrivers, Phillips ≅2.3mm and flathead ≅2.3mm

OPTIONAL

- Flux Pen
- Cleaning Brush (an old toothbrush will do)
- Masking Tape (It can help hold components in place when flipping the board over to solder)

CONSTRUCTION GUIDE

There are already excellent soldering guides in existence, so we will refrain from reinventing the wheel here.

If you need some guidance, please check out the Moritz Klein x Erica Synth Build Documents. The soldering appendix is an excellent resource.

Or, if you prefer videos, this is a pretty good guide.
In most cases, components can be placed onto the PCBs, and then the board can be flipped upside down and laid facedown on the soldering mat to solder the legs to the back of the PCB.

PARTS LIST

| Component	Qty
Expander Cable	1
Faceplate	1
Faceplate Screws	2
Front PCB	1
Back PCB	1
Trimmer Bourns 3296X-1-103 100k Side Slot Adjustment	2
Standoff	2
Standoff Screws	4
01 x 08 Pin Header	2
01 x 08 Pin Socket	2
Right Angle Shrouded Power Header	1
02 x 03 Pin Header - Expander Connection pins	2
Thonkiconn Jack	6
Bananuts	6
Knobs	4
A100k Alpha D Shaft	2
B100k Alpha D Shaft	2
Black Hex Nut	4
SPDT Switch	2
Power Cable	1

ASSEMBLY STEPS

Note: when instructed to solder things in place, it is also implied to cut the legs off the components with legs once soldering is complete. In this build, it is only the trimmers. Once the legs are cut, you can apply heat again (and solder if required) from the soldering iron to make an aesthetically pleasing solder joint.


| Front PCB | Back PCB |
| Face | Face |

1. Find the Back PCB. Place the 2x5 pin shrouded power header onto the face of the Back PCB. Ensure the key slot is towards the left of the PCB. Flip the board over and solder it in place. Match the small arrow on the shrouded header to the white stripe marked !RED! (indicated in red below).
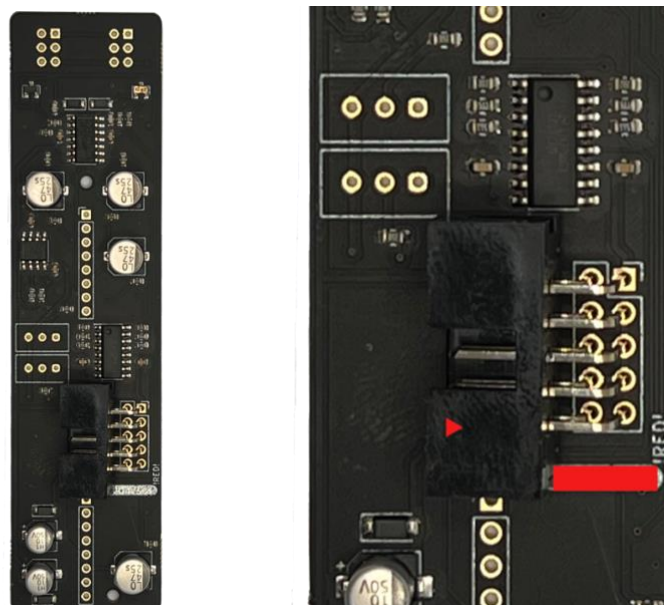
2. Select the two side adjustment 100k trimmers. Place them on the face of the Back PCB so the adjustment screws are outermost. Flip the board and solder; use masking tape here if you need to.
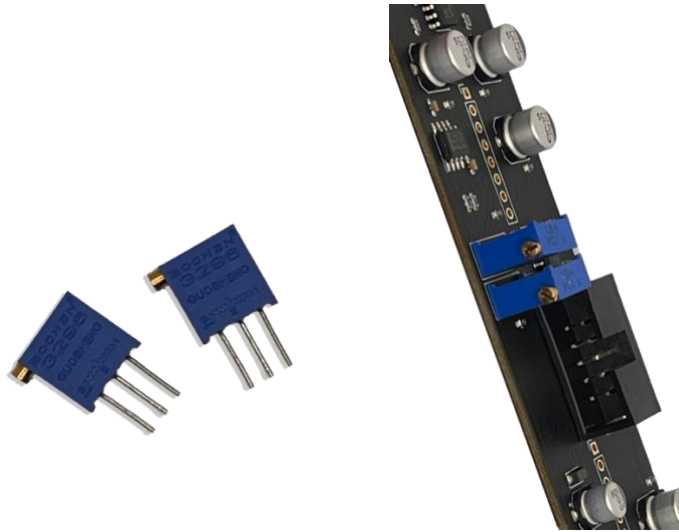
3. Place the two 2x3 pin headers in the footprints on the rear of the Back PCB. Flip the board holding them in place (masking tape is your friend here) and solder them in place. A flux pen can help get a good solder joint here; a light wipe over the pads is all that's required.


4. Attach the standoffs to the rear of the Front PCB with two M2 screws. Put the other M2 screws to the side for now.
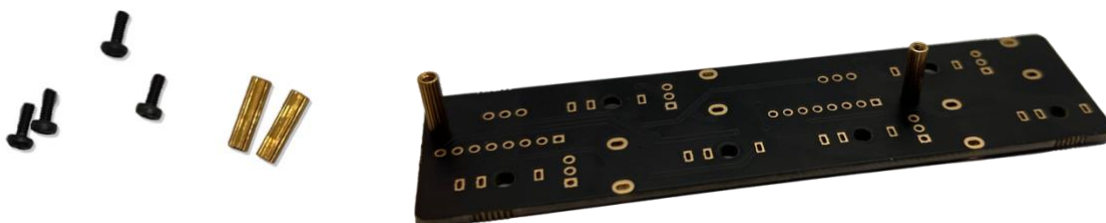
5. Lay the Front PCB face down and lay the pin headers and pin sockets onto the PCB. Don't solder yet.

   Note: we kindly put the pins into the sockets already. We have a convention to place the sockets against the rear of the Front PCB; this will help compatibility if there are any future issues swapping any broken PCB parts around.
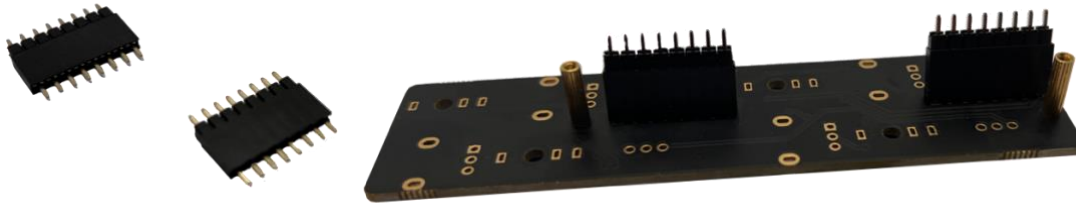
6. Lay the Back PCB face down on the pin headers. Give everything a wiggle until everything is correctly aligned, this can be a little fiddly, but we have confidence in your skills! Attach Back PCB to the standoffs with the remaining two M2 screws.


7. Solder the pin headers in place
8. Unscrew the Back PCB separate the boards, and set the two M2 screws to one side.
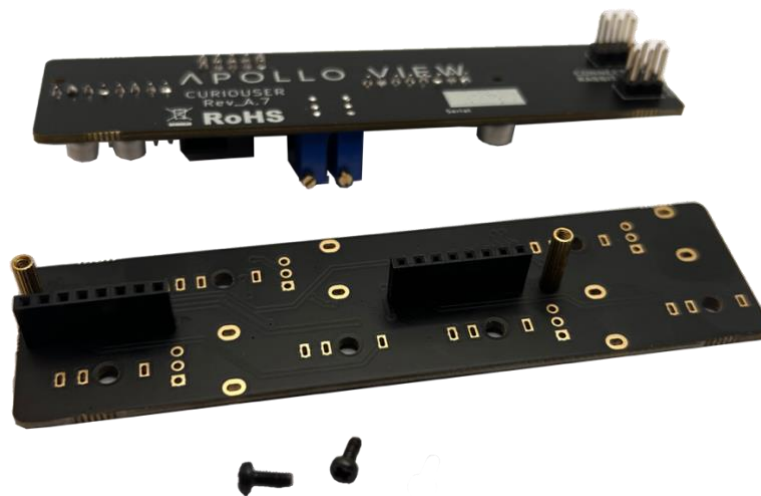
9. We will now populate the face side of the Front PCB, starting with the potentiometers for In A and In B, which are all A100k (the potentiometers are clearly labelled with their value). Using pliers to straighten the kinked legs can help with positioning the potentiometers.
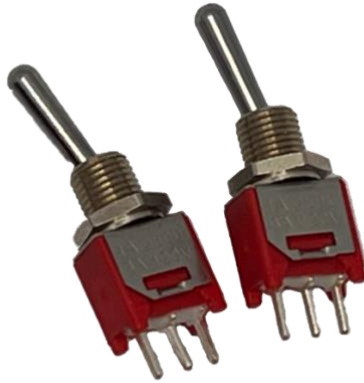
   Don't solder anything until the Faceplate is on.
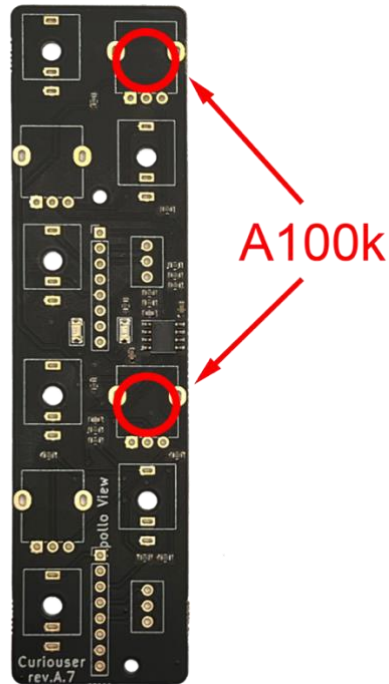
10. Next, populate with the B100k potentiometers as shown below.
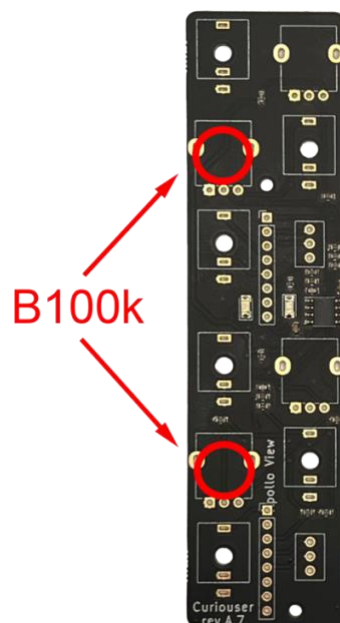
11. Screw a nut onto the two SPDT switches.

12. Place switches with the flat key (on the thread/barrel of the switch) at the bottom. When this step is down, the Front PCB should look as follows (the red line indicates the flat thread/barrel of the switch)

13. Place on the Faceplate. Take care not to dislodge any components. You will have to begin feeding the faceplate over the Pots, then take care with the switches. The switches should all be in the **Up** position.

14. Holding the faceplate on firmly, check the rear of the PCB that all the legs are through the holes. Take care that **all** of the jacks' ground pins are through, as these spring little legs. If any components need realigning and the legs placed through holes, do this before moving on to the next step.
15. Put black hex nuts on first. Place them with the smooth/rounded side down. If you position them with the flatter side down, they scratch the Faceplate while tightening.
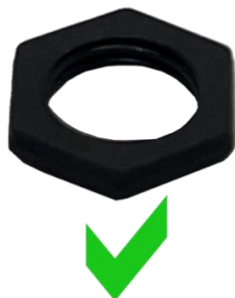
Flat side up   Rounded side up

16. Finger Tighten the black hex nuts first before tightening with 10mm hex driver.
    Note: The washers aren't strictly necessary but can be used if desired. We chose to leave them off as we found it more aesthetically pleasing.

17. Then position and finger tighten the switch nuts. Do the final tightening with the 7mm hex driver.

18. Then position and finger tighten the Bananuts onto the jacks. Do the final tightening with the Bananut driver.
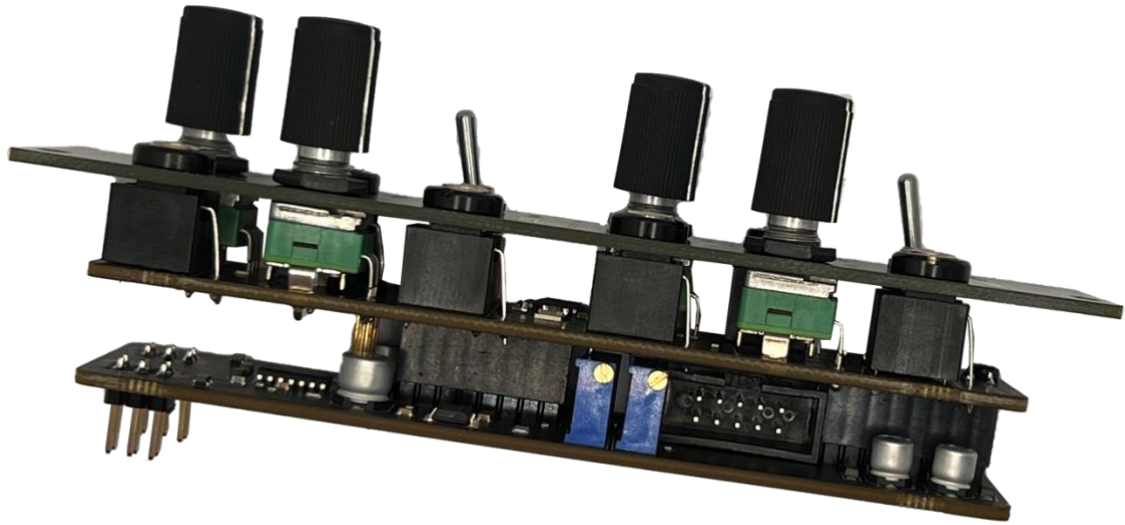

19. Boom! You are ready to solder everything in place.

20. Give all solder joints a quick scrub with a cleaning brush to remove flux.
21. Screw the Back PCB onto the standoffs with the M2 screws you put to the side earlier.

22. Gently push the knobs on.

23. Place the power cable into the shrouded header, and we are ready to calibrate.

CALIBRATION

We want to ensure the VCAs are not bleeding any signal through to Rabbit Hole (if you are using it) when the Gain control is set to its minimum; this step requires your ears.

Connect Curiosuer to Rabbit Hole using the included connecter cable; check the manual for instructions.

The module needs to be connected to the power supply and on for calibration. But you need access to the back of the module, so don't screw onto the rails of your rack just yet.

Though the Input jacks and Gain knobs are not explicitly labelled A & B on Curiouser, for the purpose of making the following calibration steps clear, we will refer to the top channel as A. Therefore, it has In A and Gain A. And the bottom channel as B, with In B and Gain B.

VCA BLEED CALIBRATION

Due to the nature of the tolerances and differences between each of the vintage VCAs integrated circuit chips, it is possible that there is some bleed from the VCA. Normally this is undetectable, but due to the possible gain of x 1000 in Rabbit Hole, this bleed can become evident at high Drive and Tube settings.

Therefore, we need to counteract this by adjusting the trimmers, which compensate for the bleed.

1. Patch a signal into In A on Curiouser, a low-frequency ≅ 100Hz will do.
2. Make sure the switches are in the RH position (Up).
3. Patch the Output of Rabbit Hole so you can hear through your system or headphones. Ensure Rabbit Hole Output attenuverter is turned up.
   Note: this can be either fully clockwise or filly anticlockwise.
4. Turn the Gain of A the channel down to a minimum.

The following settings apply to Rabbit Hole

5. Turn the Tube and Drive to maximum.
6. The Mix knob also needs to be set fully wet (maximum clockwise).
7. Turn the Gain A & B to minimum.
8. Make sure L8, FB and OWTH are OFF (Up position).
9. Tone should be in the centre position.

See the example settings below.

10. Adjust the trimmer for Gain A (indicated below), so it is fully anticlockwise. It will click when you have hit the end of the trimmers travel.

If you cannot hear any signal, the calibration for this channel is complete skip the remaining steps for this channel

Gain A (Top)
Gain B (Bottom)
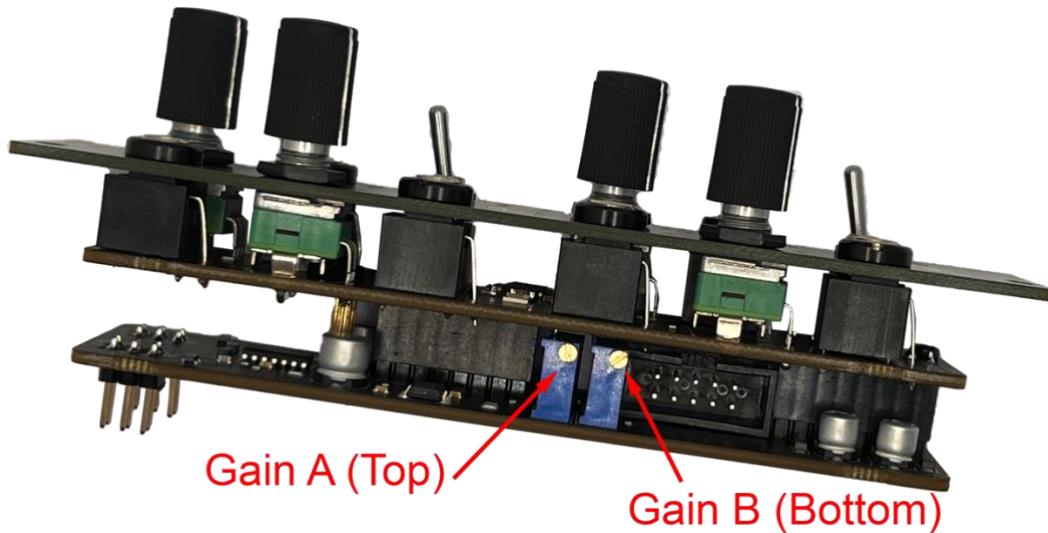
11. Make clockwise adjustments to the trimmer until there is no sound present. **Note:** Rotate anticlockwise for more gain and clockwise for less gain.
12. When you feel like you have cut the bleed out, check that the signal is present with the smallest of increases of the Gain knob.
    Note: For some VCA chips, the trimmer might be superfluous, and the trimmer will reach the end of its travel, i.e. fully anticlockwise. This isn't a problem.
13. Change the input from In A to In B and turn Gain B down to a minimum.
14. Repeat steps 9-11 with the trimmer for Gain B.

SERIAL NUMBER

Now you have completed your build, contact info@apolloviewmodular.com who will issue your special DIY serial number. This can be written in indelible ink on the back PCB and the details of the registration card can be updated.

THAT'S IT; YOU'RE GOOD TO GO!

PLEASE READ THE MANUAL FOR MORE OPERATIONAL INFO

GO MAKE SOME FILTHY SOUNDS.

DON'T GET TOO LOST DOWN THE RABBIT HOLE!

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