

THONK SYNTH
τ16 VMX

Four channel mixer, dual VCA and cascading VCA

Eurorack DIY Kit Build Instructions

OVERVIEW

For the most recent version of this document please visit

https://www.thonk.co.uk/vmx

This document should be used in conjunction with the relevant user manual.

All Thonk kits are sold under our standard Terms and Conditions - http://www.thonk.co.uk/faq/

DIY INSTRUCTIONS

This document gives detailed instructions that assume you have purchased a complete kit from www.thonk.co.uk. It also assumes no previous knowledge of electronics. To learn to solder try http://youtu.be/I_NU2ruzyc4 and the **Adafruit guide to excellent soldering** – http://bit.ly/1l77tF4

Watch and understand that whole YouTube video! If you're not achieving the results shown in the video then you need to buy new tools or seek advice.

You will not end up with a working module otherwise.

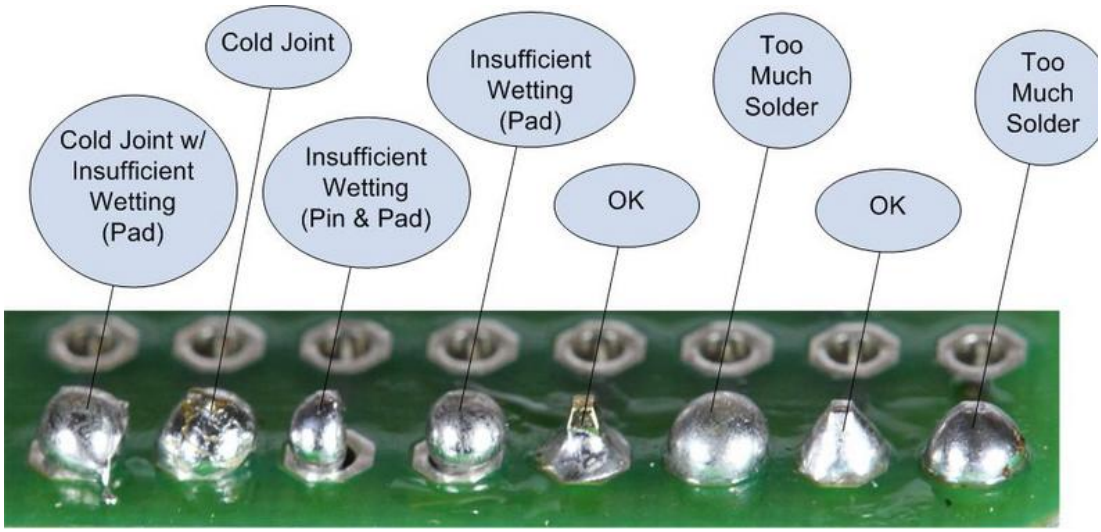
TOOLS REQUIRED

Soldering iron, M2 screwdriver, diagonal cutters AKA snips AKA side-cutters. A Digital Multimeter is always helpful for checking for bad solder joints and continuity. Thonk sell a range of inexpensive tools here - http://bit.ly/1jxqF3n

SOLDER JOINTS

Your solder joints should look like those shown as 'OK' below, they should have that neat conical shape on BOTH sides of the PCB. If they don't look the same on both sides then stop! Work out why from the soldering guides linked and don't continue until you are getting those results.

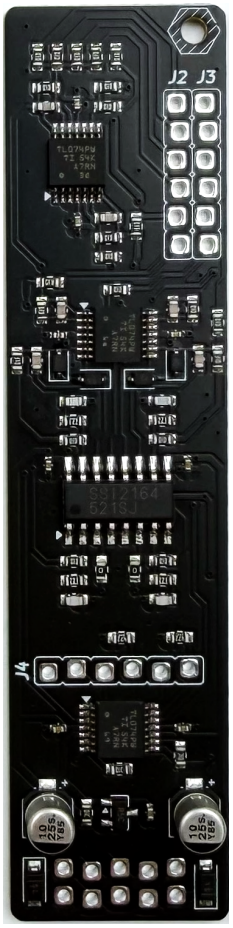
This isn't just OCD talking, you are very likely to end up with a destroyed, damaged or defective unit if you're not hitting that standard.



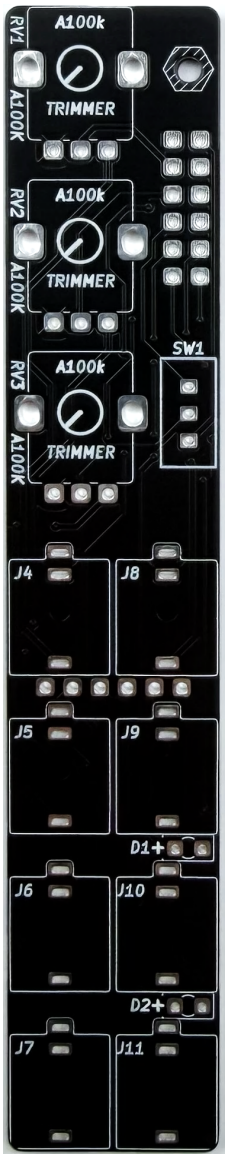
This photo is from the **Adafruit guide to excellent soldering** and is reproduced under an Attribution-Sharealike creative commons license - http://creativecommons.org/licenses/by-sa/3.0/

BUILD INSTRUCTIONS

Main PCB

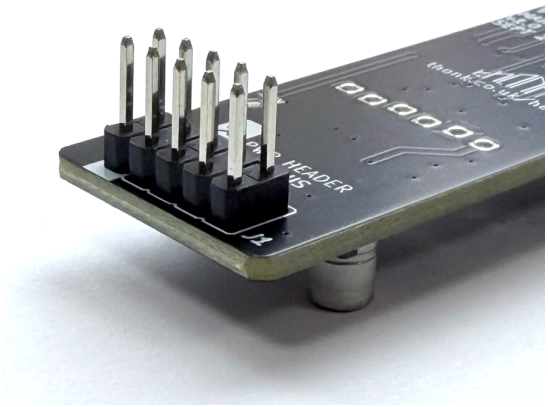


Control PCB



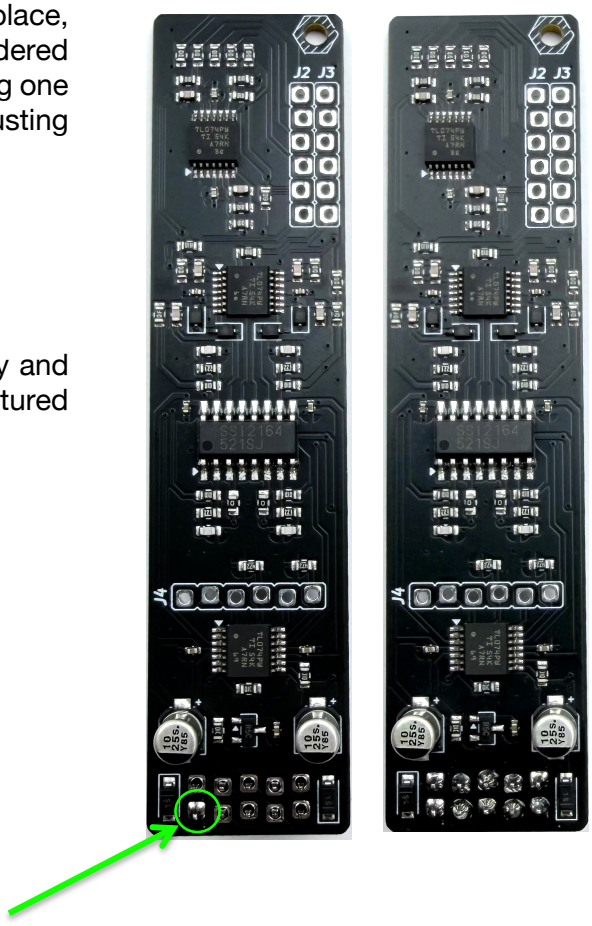
1.

First take the Main PCB and solder the 2x5 power header to the rear of the board (the side without the pre-soldered SMD components).



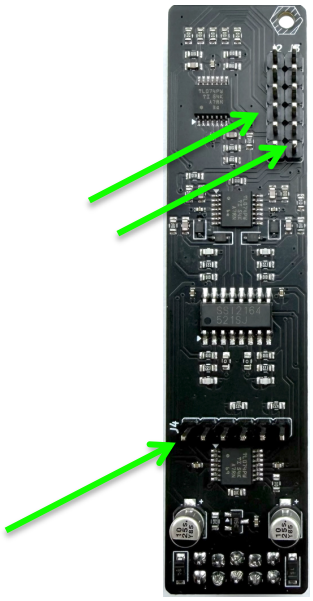
The header should stay firmly in place, but you can check that this is soldered flush to the board by first soldering one point then reflowing and adjusting where necessary.

Check the header is seated firmly and flush against the PCB as pictured before proceeding.



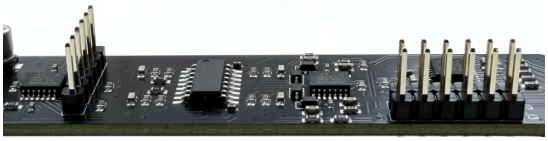
2.

Continuing with the main PCB, take the three 1x6 pin headers.



Place these headers on the opposite side of the board to the power header and on the same side as the pre-soldered components as pictured.

Note that two of the headers are placed directly next to each other.



Ensure the headers are oriented with the short end of the pins placed into the PCB.



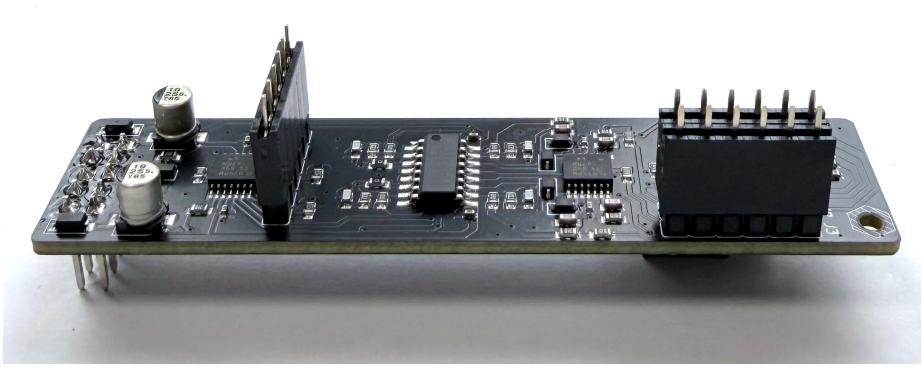
Flip the PCB over and solder all three of these headers ensuring they stay flush to the board.

The headers should stay firmly in place but you can check they are flush by first soldering one joint and reflowing and adjusting where necessary.

3.

Take the three 1x6 socket headers and insert them onto the pin headers from step 2 as pictured.

DON'T SOLDER YET
Resume soldering at step 5.



4.

Next take the control PCB and place it together with the main PCB inserting the pins from the socket headers into the pads on the control PCB.

Check the PCBs are the correct way round with the power header facing the rear of the module and the footprints on the control PCB facing the front of the module as pictured.

DON'T SOLDER YET
Resume soldering at step 5.

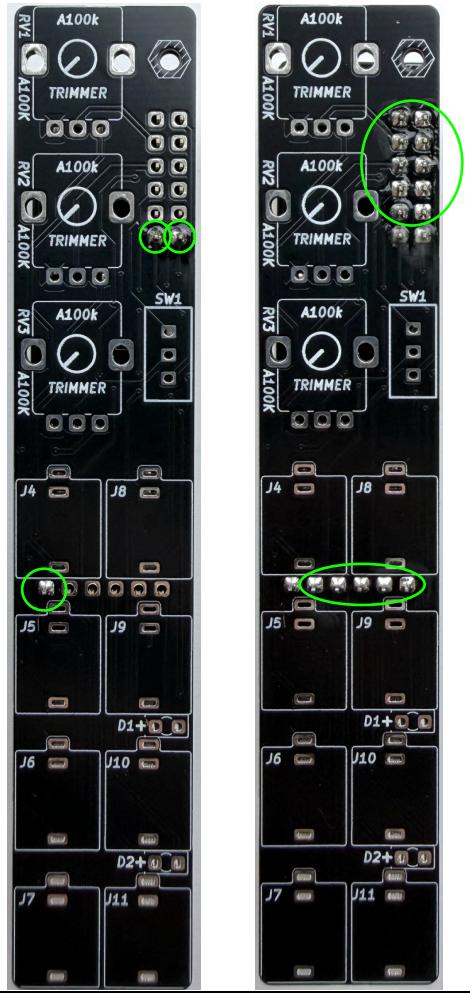


5.

On the control PCB first solder one point of each socket header.

Reflow and adjust if necessary, ensuring all headers are flush and both PCBs are level.

Proceed to solder the remaining points on all headers when you are satisfied with the positioning.



6.

Carefully detach the two boards and locate the following components for the next steps.

- A100k Tall Trimmer Pots x3
- Thonkiconn Jack x8
- Red Two Position Slide Switch x1
- 10mm Black Male-Female Standoff
-11mm White Female-Female Standoff

Remove the nuts from the eight Thonkiconn jacks.

DON'T SOLDER YET
Resume soldering at step 12.



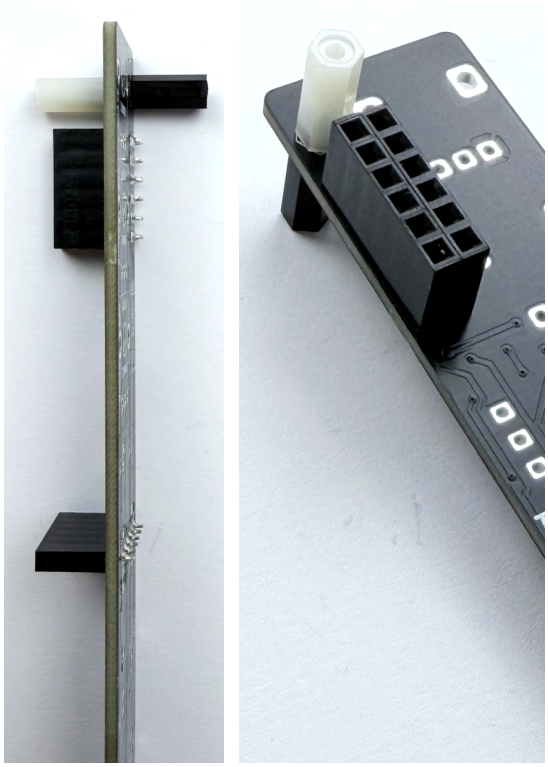
7.

First take the black standoff and thread it through the top of the control PCB and secure it on the rear side of the PCB with the white 11mm Standoff.

Check you have each standoff on the correct side of the PCB as pictured.

The black standoff must be positioned on the same side as the component footprints and the white standoff on the same side as the socket headers.

DON'T SOLDER YET
Resume soldering at step 12.



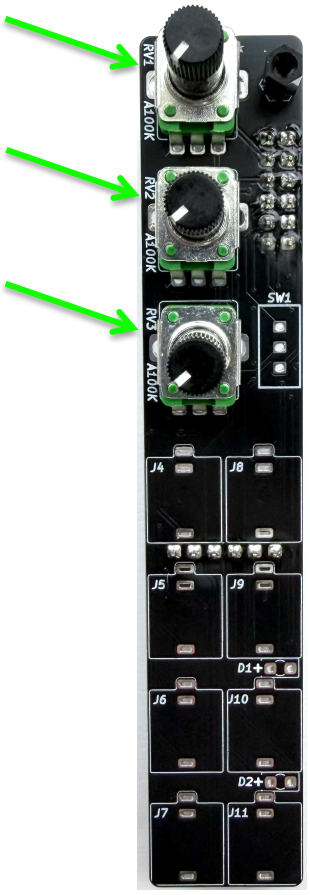
8.

Take the green trimmer pots and place into the positions shown on the PCB.

Each trimmer pot should click firmly into position.

DON'T SOLDER YET

Resume soldering at step 12.



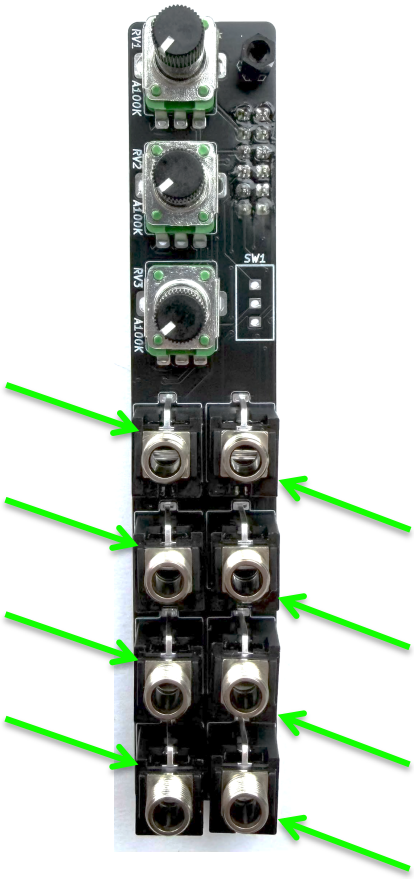
9.

Place the eight jacks into the positions shown.

Ensure all the longer ground pins are inserted into the correct pads at the top of each jack footprint.

DON'T SOLDER YET

Resume soldering at step 12.

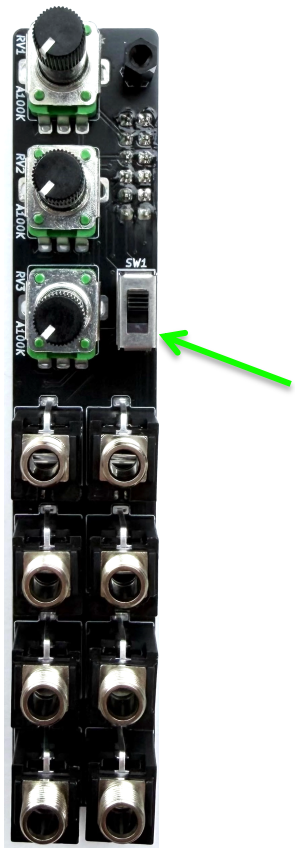


10.

Next place the single red slide switch into the position on the edge of the PCB.

DON'T SOLDER YET

Resume soldering at step 12.



11.

Place the panel over the PCB assembly and secure with one of the small flat-top screws and four of the jack nuts.

Ensure the panel is secure and all the placed components are sitting flush.

Be careful not to overtighten the screw or nuts.

DON'T SOLDER YET

Resume soldering at step 12.



12.

First solder just one pin of each component as shown in the photo.

Take extra care with the placement of your soldering iron around the pre-soldered SMD components.

Check once more that all panel components are sitting flush and level between the PCB and Panel and that all pots and switches are functioning as expected.



13.

Proceed to solder the remaining points being sure to take extra care with your soldering iron placement around the header sockets.



14.

Remove the panel once more setting aside the nuts and screw before locating the two bi-colour LEDs remaining from your bag of components.

DON'T SOLDER YET

Resume soldering at step 18.



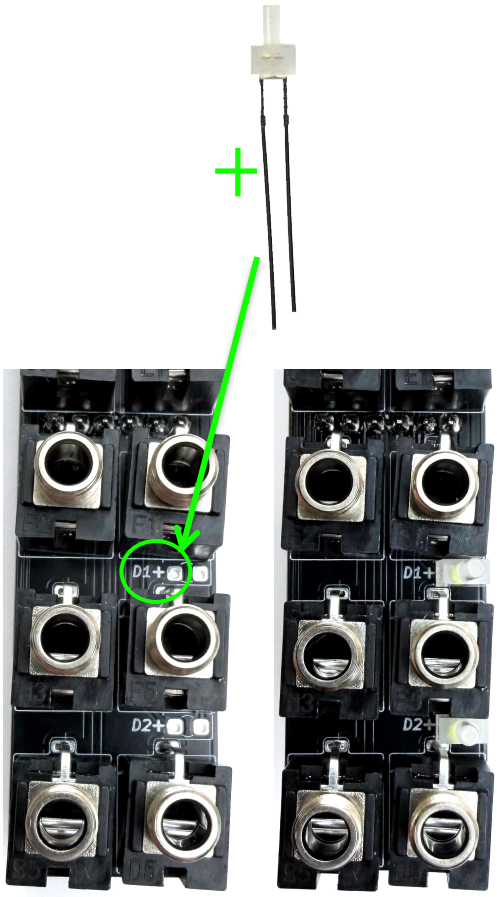
15.

Place the LEDs into the positions shown above the bottom two rows of jacks.

CHECK ORIENTATION – these components are polarised and must be placed as pictured with the long leg inserted into the pad marked with '+'.

DON'T SOLDER YET

Resume soldering at step 18.



16.

Secure the panel once more this time with one of the flat-top screws and all eight jack nuts.

DON'T SOLDER YET

Resume soldering at step 18.



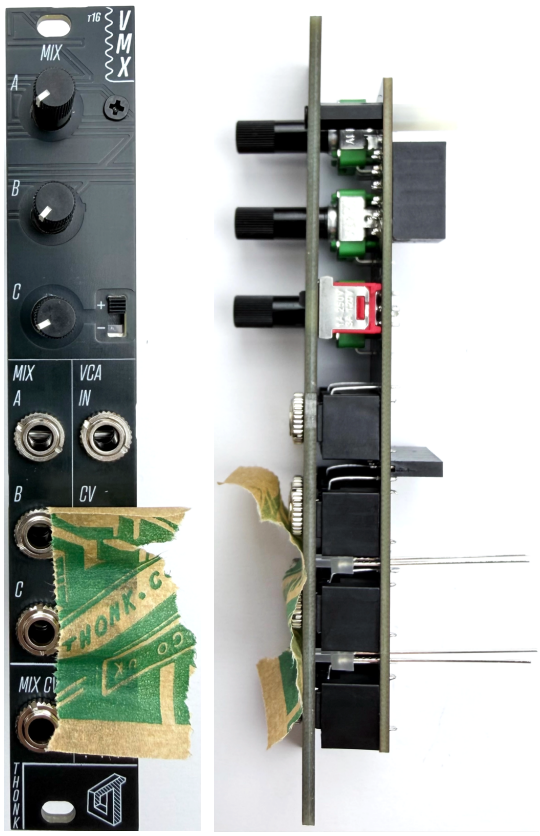
17.

Once the panel is secured use small strips of masking tape or similar to hold the LEDs flush against the panel.

Check the tops of both LEDs stay flush to the top of the panel before proceeding.

DON'T SOLDER YET

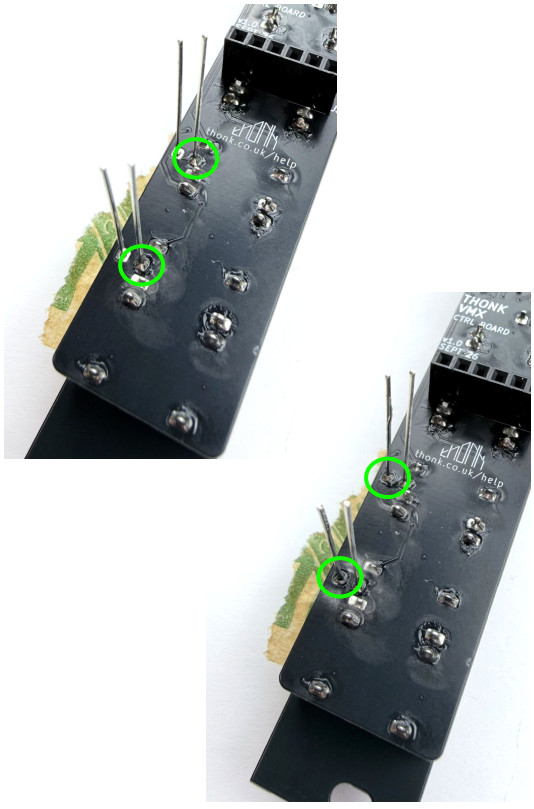
Resume soldering at step 18.



18.

First solder just one pin of each LED before checking once more that both LEDs are sitting flush to the panel as pictured.

Reflow and adjust if necessary, before soldering the remaining two pins.



19.

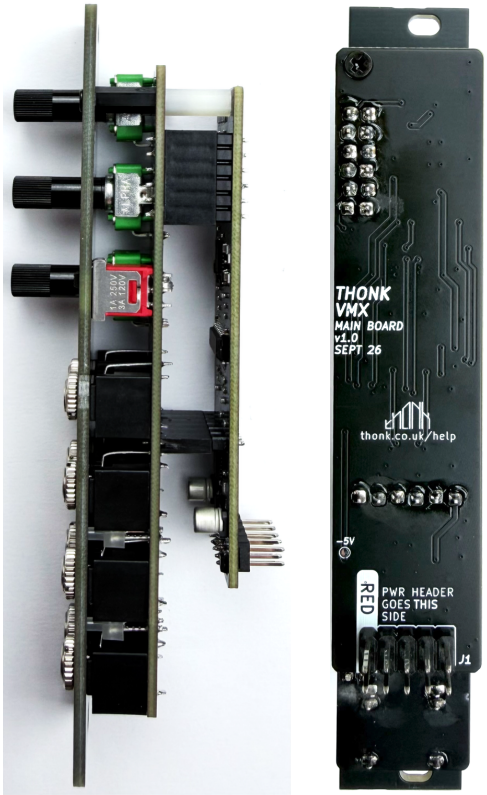
Using side cutters clip the four LED legs so the solder points are small peaks like other components.



20.

Place the two PCB assemblies back together as pictured ensuring all three headers are firmly seated together.

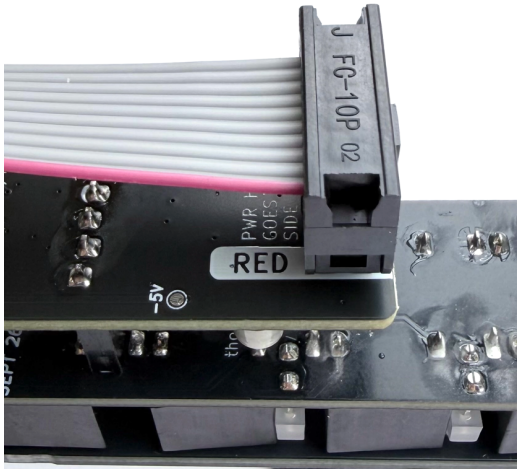
Secure the main PCB together with the control PCB using the remaining flat-top screw.



21.

Flip the module over and finally attach the power cable.

Be sure to follow the polarity by lining up the red stripe on the cable with the text on the PCB. Picture shown for reference.



Your Thonk Synth VMX is now complete.

Find the manual and other product info on the Thonk website through the link below.

https://www.thonk.co.uk/vmx

