

THONK SYNTH

T10 VC4

COMPACT QUAD VCA

Eurorack DIY Kit
Build Instructions



OVERVIEW

For the most recent version of this document please visit

<http://thonk.co.uk/vc4>

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/l_NU2ruzyc4 and the **Adafruit guide to excellent soldering** – <http://bit.ly/1177tF4>

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

Solder, soldering iron, diagonal cutters AKA snips AKA side-cutters, masking tape. A Digital Multimeter is always helpful for checking for bad solder joints and continuity. Thonk sell a range of inexpensive tools here -

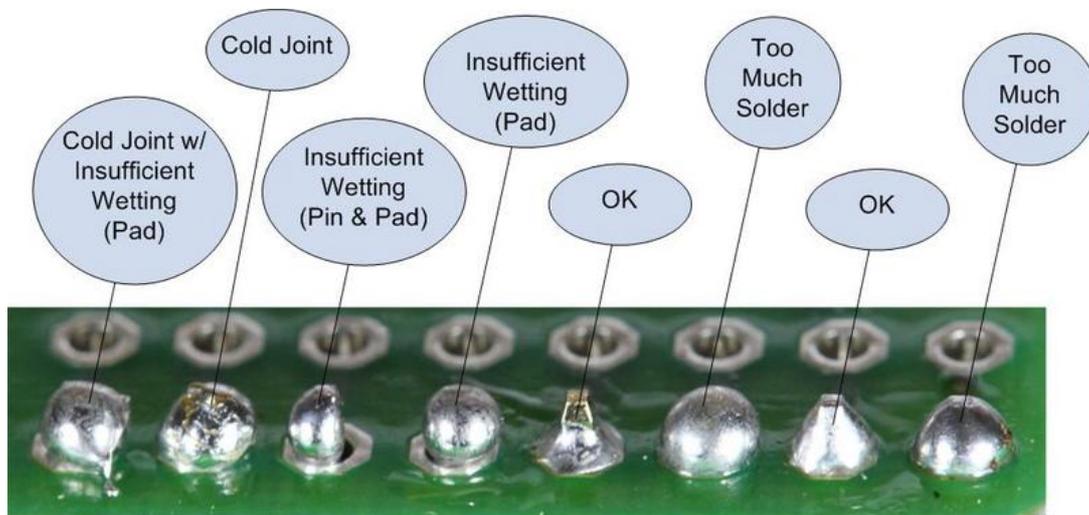
<http://bit.ly/1jxqF3n>



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](http://adafruit.com/guides/excellent_soldering) and is reproduced under an Attribution-Sharealike creative commons license - <http://creativecommons.org/licenses/by-sa/3.0/>

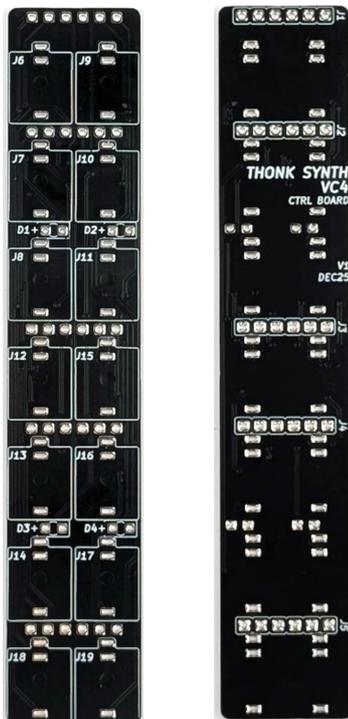


BUILD INSTRUCTIONS



In your kit you will have the above items. Within the bags labelled 't10 VC4 Components' and 't10 VC4 Hardware' you will find all of the parts needed for this build, alongside the module panel and both PCB's which have been wrapped together.

Control PCB



Front

Back

Main PCB



Front

Back



1.

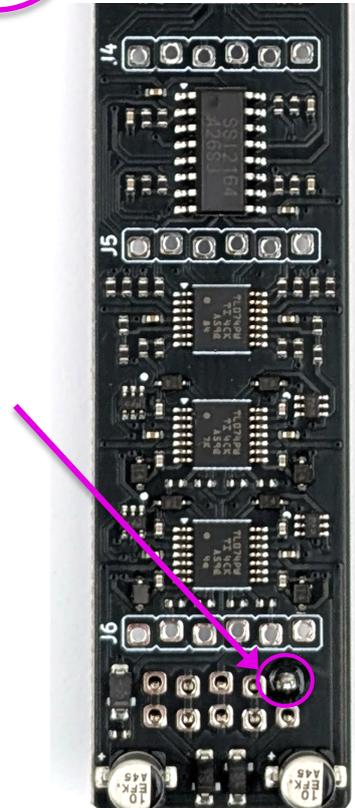
First take the main PCB and place the 2x5 power header on the rear of the board.

Double check this is placed on the side of the PCB 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.

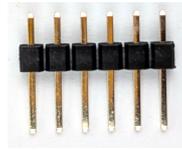
Solder the remaining pins on the power header when you are satisfied with the positioning.



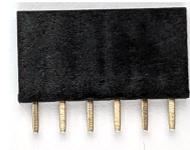


2.

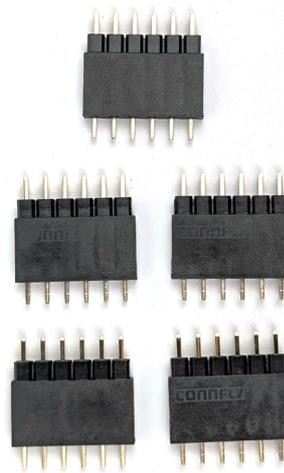
Next locate the five 1x6 socket headers and five 1x6 pin headers and insert the longer end of the pin headers into the sockets as shown.



Pin Header

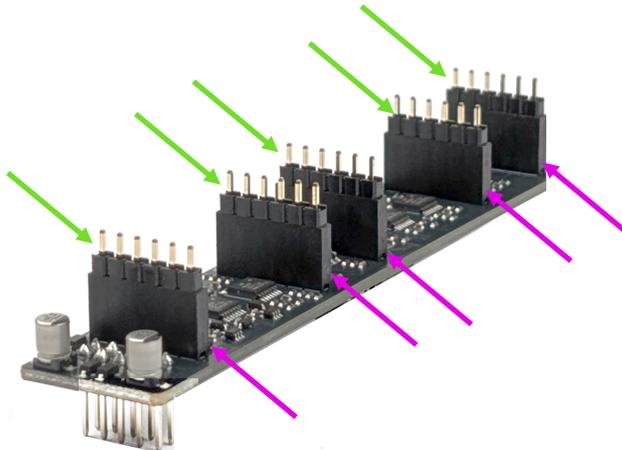


Socket Header



3.

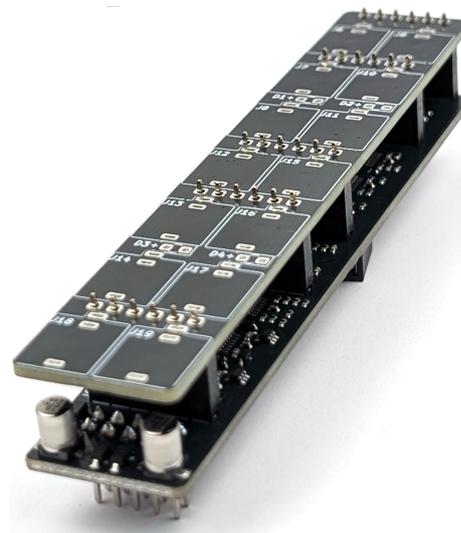
Continuing with the main PCB, place the socket end of the header assembly onto the opposite side of the board to the power header and on the same side as the pre-soldered components as pictured.



Place the control PCB onto the top of the pin headers as pictured.

Ensure that the control PCB is the correct way around with the front of the board showing the jack socket footprints facing upwards.

DON'T SOLDER YET

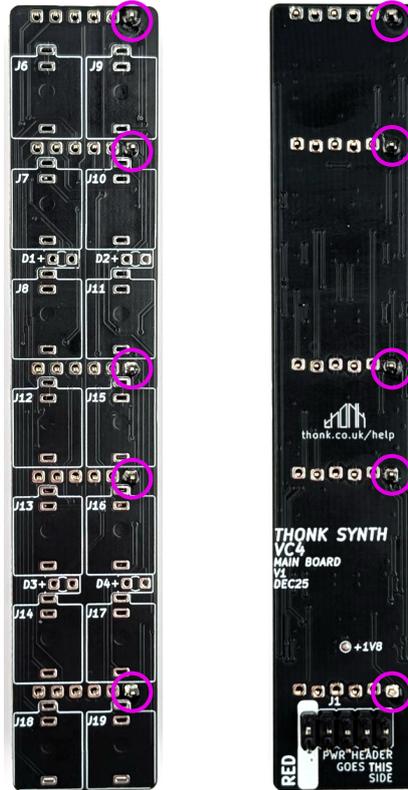




4.

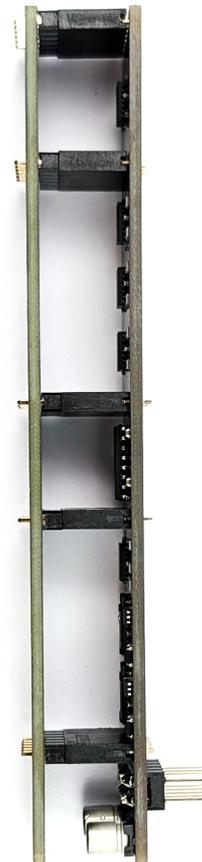
When you have double checked both the socket and pin ends of each header are inserted into the correct side of each board then solder just one point on each of the six socket and pin headers as pictured.

With only one point on each socket soldered you can adjust the position of each header individually whilst reapplying heat and reflowing the solder as necessary.



5.

Once you are happy with the positioning of the headers between the two PCB's proceed to solder all remaining pins for each row of headers on both boards.





6.

With the headers now fully secured on both PCB's pull the two PCB's apart again and set the main board aside.

Locate the 14 jack sockets and 4 LED's provided in your kit.

DON'T SOLDER YET

Resume soldering at step 11.



7.

Place the 14 jack sockets in the positions pictured with the long leg placed into the uppermost pad of each socket footprint.

DON'T SOLDER YET

Resume soldering at step 11.



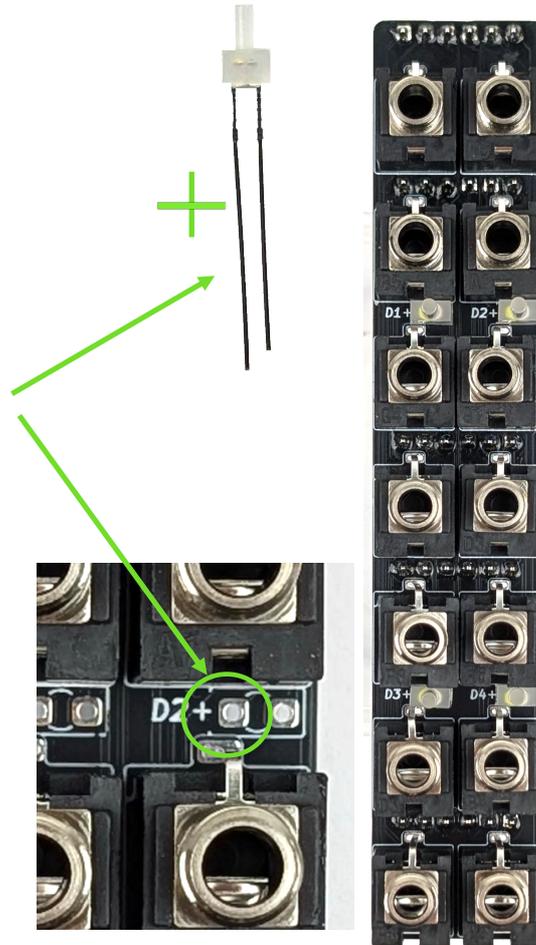
8.

Place the 4 orange LED's into positions marked D1, D2, D3, D4 located under the second and fifth row of sockets.

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

DON'T SOLDER YET

Resume soldering at step 11.



9.

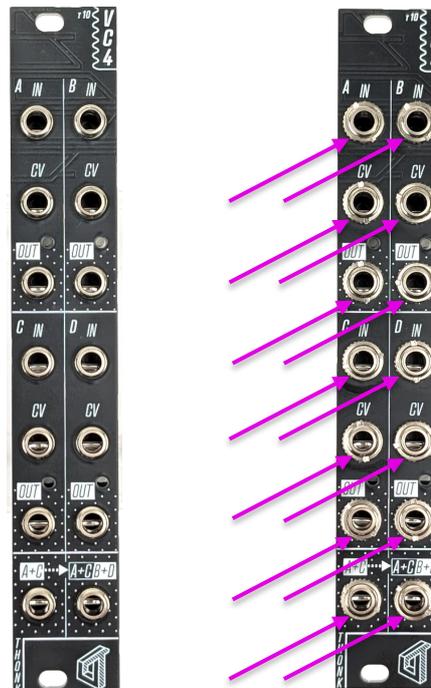
Place the panel over the components making sure all the sockets are lined up and through the holes in the panel.

Whilst keeping the PCB and Panel assembly held together, secure the panel to the sockets with the 14 knurled nuts.

Be careful not to overtighten the nuts or pull the sockets off the PCB.

DON'T SOLDER YET

Resume soldering at step 11.



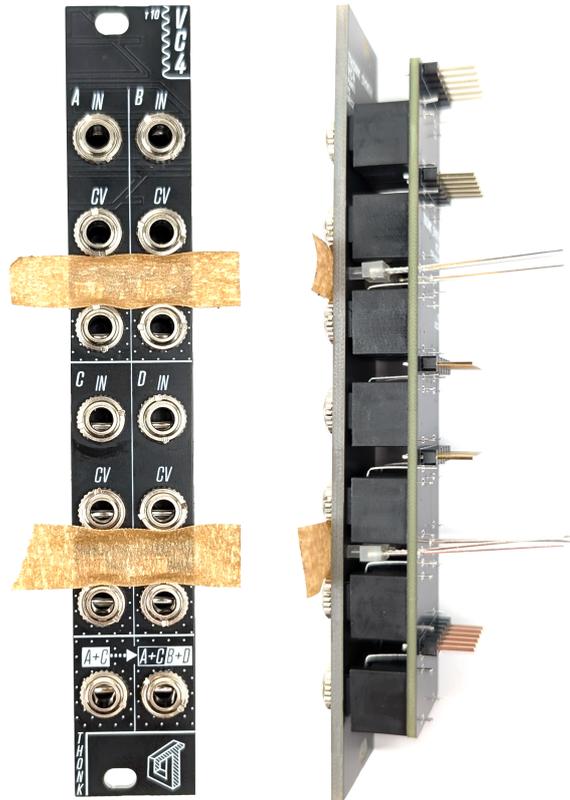
10.

Push the 4 LED's through the holes in the panel so the tops of the LED's are flush with the panel.

Use small strips of masking tape or similar to keep the LED's flush with the panel whilst soldering.

DON'T SOLDER YET

Resume soldering at step 11.



11.

First solder the one bottom pin of each socket and one leg of each LED as shown.

Work slowly and carefully ensuring that the solder is flowing into each pad and your solder joints look like the example from the start of this document.

Pay particular attention to the placement of your iron when soldering the points of the sockets located near the headers.





12.

Check that the 14 sockets are level between the panel and PCB and the tops of the LED's are flush with the panel.



The black plastic of each socket should be sitting flush to the PCB and the panel sitting level against the top of each socket as pictured.



DON'T SOLDER YET

Resume soldering at step 13.

With only one point on each socket soldered you can adjust the position and level if necessary, by reapplying heat and reflowing the solder.

Once you are happy with the positioning of the components, proceed to the next step.



13.

Continue to solder all remaining points on each of the sockets and LED's. There should be 32 points remaining to solder.

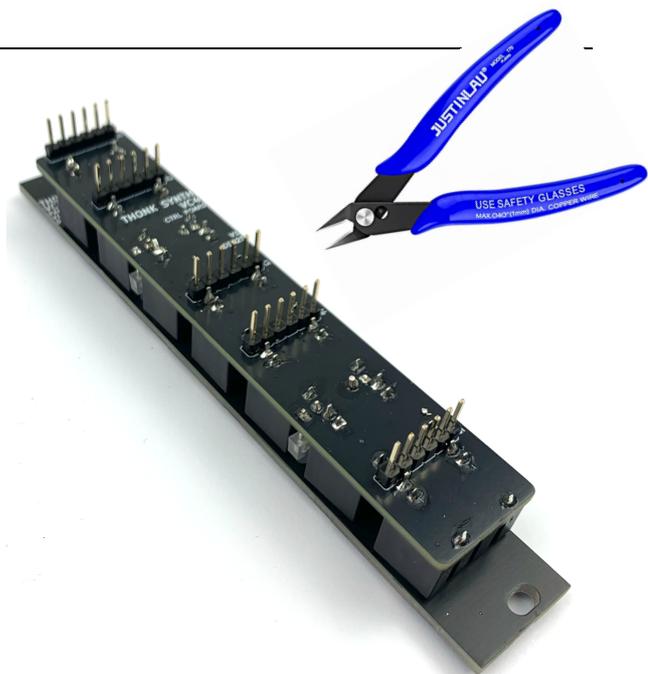
Again, work slowly and carefully ensuring that the solder is flowing into each pad and your solder joints look like the example from the start of this document.

Pay particular attention to the placement of your iron when soldering the points of the sockets located near the headers.



14.

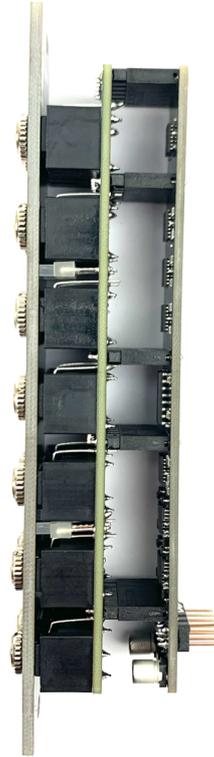
Once all points are soldered, clip the legs of the LED's with a pair of side cutters so they are left as small solder peaks like all the other components.





15.

With soldering now complete replace the main board onto the back of the control board securing the headers together once more.



16.

Finally attach the power cable to the rear of the module.

Be sure to follow the correct polarity by lining the red stripe on the cable up with the text and white stripe on the PCB.

Picture shown for reference.





17.

Your Think Synth VC4 is now complete.

Find the user manual and other product info through the link below.

<http://thonk.co.uk/vc4>

