VACTROL MIX OVERVIEW

For the most recent version of this document please visit – https://thonk.co.uk/documents/turing/

For all technical support please visit this thread on Muffwiggler - http://bit.ly/1VzDXPR

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 https://www.youtube.com/watch?v=IpkkfK937mU 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.**
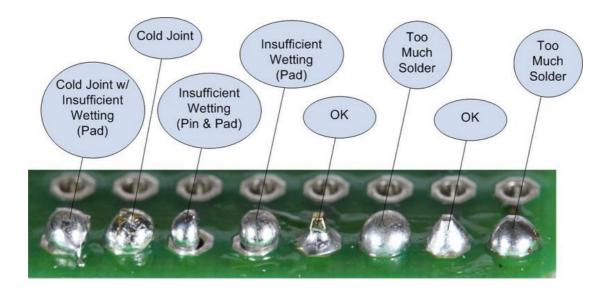
TOOLS REQUIRED

Soldering iron, snipe nose pliers, wire strippers, small flat head screwdriver and 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 about perfectionism, 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://bit.ly/1l77tF4 and is reproduced under an Attribution-Sharealike creative commons license - http://creativecommons.org/licenses/by-sa/3.0/
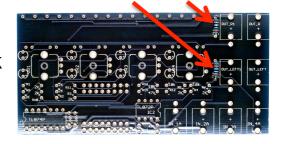
VACTROL MIX BUILD INSTRUCTIONS

1.

Start by emptying the bag into a bowl or container. This makes it much easier to pick parts as you need them and you're a lot less likely to lose anything.
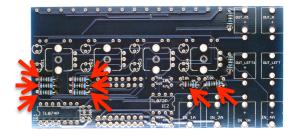
2.

First identify and solder the two **1K** resistors into positions **R7** and **R8**

3.

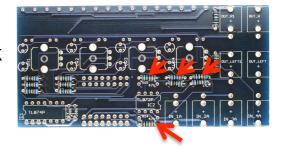Next identify and solder the eight **2K** resistors into positions **R1, R2, R3, R4, R9, R10, R11, R12**
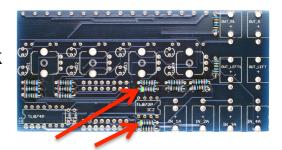
4.

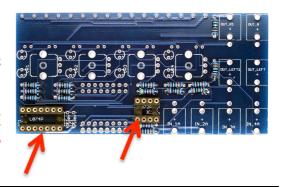Next identify and solder the four **10K** resistors into positions **R5, R6, R13, R16**

5.

Next identify and solder the two **47K** resistors into positions **R14** & **R15**
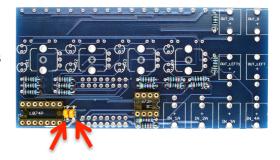
6.

Next solder the **8 pin** and **14 pin** IC Sockets into the positions shown.

NOTE!: ENSURE THE NOTCH IN THE END OF EACH SOCKETS MATCHES THE NOTCH ON THE PCB SILKSCREEN.

7.

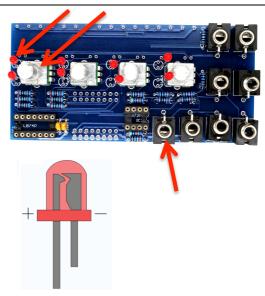Solder the two **100n** caps into positions **C1** & **C2.**

8.

Next position these items into position but **DO NOT SOLDER** yet.

1) Four B50K pots
2) Eight jack sockets
3) Eight red LEDs

NOTE! The long lead on the LED is the positive terminal, the Anode. This should go into the hole marked with a + on the LED footprint. Orientation is vital.

DO NOT SOLDER yet.

9.

Lift the PCB so the LEDs drop down to be flush with the surface of the PCB.

Take the front panel and carefully place over the 4 pots and 8 jacks without disturbing their connection to the PCB. Put a couple of nuts and washers on the pots as shown to hold the panel in place.

Carefully rotate the assembly so it is PCB side up. Check all the LEDs have dropped back again and are touching the front panel and are perpendicular to the PCB surface.

Now solder all the loose items… that's 52 solder joints, double check you didn't miss any!

Don't remove paper from the Acrylic panel before painting!

If you are using a panel with holes for the LEDs then ensure the LEDs are pushed through before soldering.
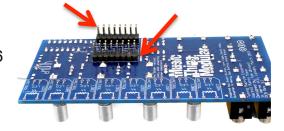
10.

Remove the panel, if the LEDs look a bit wonky then now is the time to straighten them up by hand.

11.

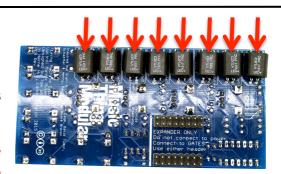Flip the board over and solder the two 16 pin headers into position as shown.
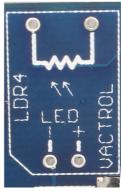
12.

Now solder the eight VTL5C3 vactrols into position as shown.

NOTE! Orientation is vital. Solder exactly as show. The LED '+' symbol on the Vactrol should match with the '+' terminal shown on the PCB.
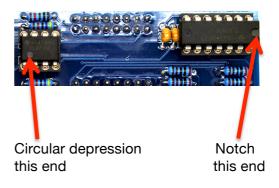

13.

Next open the silver ESD packet and put the **TL072** and **TL074** IC's into position as shown.

NOTE – Orientation is vital!

NOTE! _You will need to bend the pins on the IC inwards slightly so they are at 90 degrees to the body of the chip. They will come slightly splayed out. This can be done safely by clasping the 4 pins in a pair of pliers and very gently bending inwards together. Repeat for the other side._

Circular depression this end

Notch this end

14.

You can now paint the panel, don't peel off the paper until it is dry!

https://vimeo.com/54711135

Peel off the plastic film off the back too so the LEDs can shine through.

Once it is dry, affix to the PCB and screw on all the nuts and washers provided. The washers are for the pots.

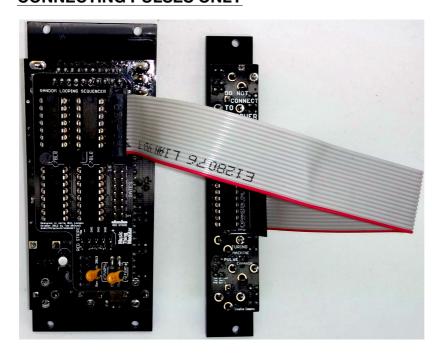Do not over-tighten the pot nuts or you can shatter the acrylic panel.

15.

The Vactrol Mix is attached to the GATES output of the BACKPACK. If you also have a Voltages you just daisy chain it off the Vactrol Mix. Some different options are shown below for hooking it up.

NOTE! If you are connecting more than 2 expander modules to a single BACKPACK (i.e. PULSES, VOLTAGES & VACTROL MIX) then you need to upgrade the positive rail fuse on the BACKPACK. More info on that here:
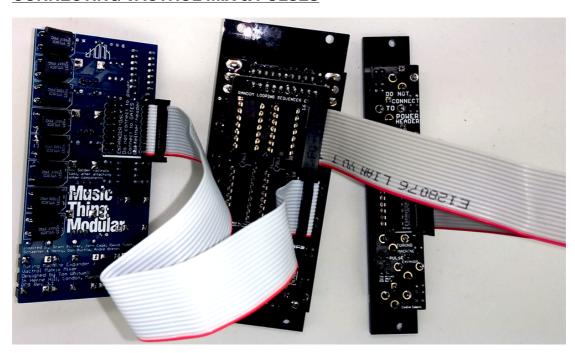
https://www.thonk.co.uk/shop/fuse-upgrade/

CONNECTING PULSES ONLY

CONNECTING VACTROL MIX & PULSES

CONNECTING VACTROL MIX, VOLTAGES & PULSES