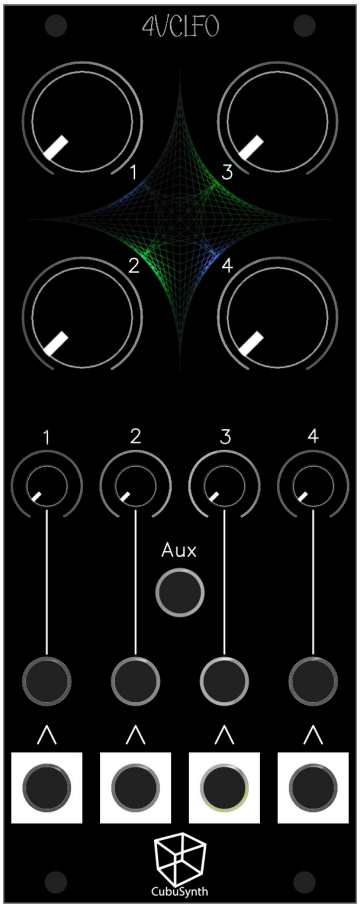
CubuSynth



4VCLFO

Quad voltage controlled Triangle LFO

Build Guide

SMD PCB V1.2 Dec2022

Written and Illustrated by Ruben Sponar

Introduction

The 4VCLFO is four LFOs with triangle Outputs in 10hp. It features a knob for the Frequency of each LFO and CV inputs with attenuators.
The „Aux“ input is normalized to the four CV inputs, so you can modulate all LFOs with one signal at the same time. Plugging a cable into the CV input breaks its connection from the aux input.
This way you can create more interesting Modulations for your Patches.

Tools Required

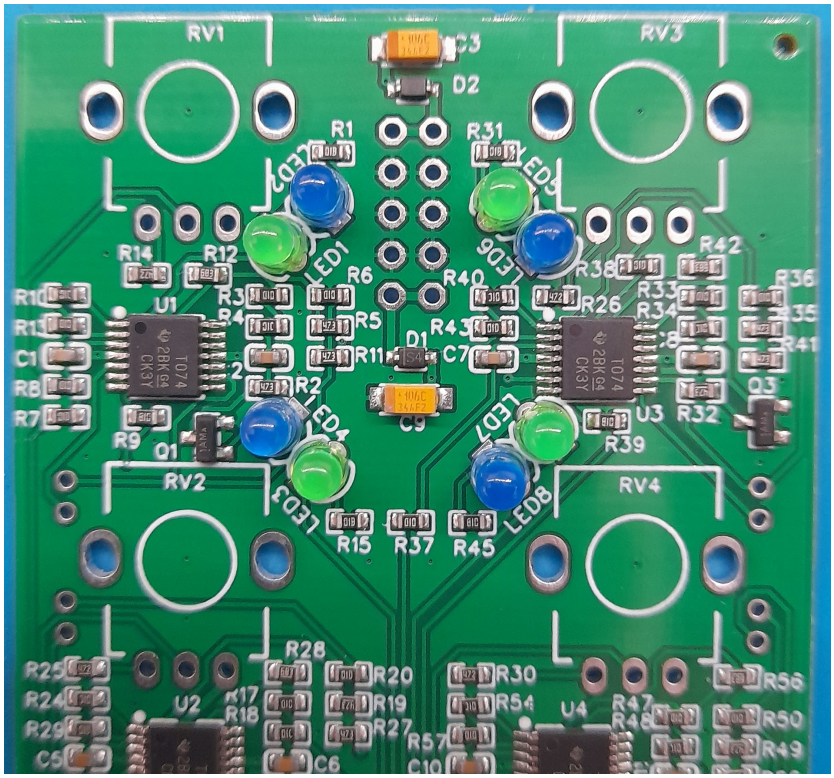
Soldering iron (+wire)
side-cutter
Nut wrench / driver M8
- optional:
Digital Multimeter
Helping (third) hand / PCB holder

BUILD GUIDE

STEP 1
LEDs

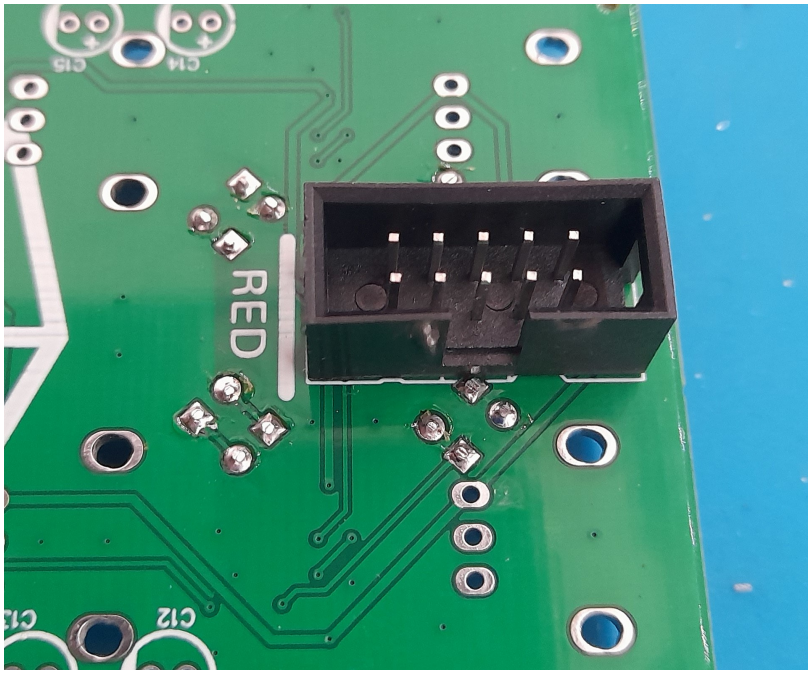
Place the LEDs like shown below.
Orientation of the LEDs is Important. The longer leg of the LED goes in the squared hole.

Make sure to have the colors placed as below to correctly indicate the LFOs Polarity.
One of each color represents positive or negative Output voltage for each LFO. In this case green stands for positive and blue for negative voltages.



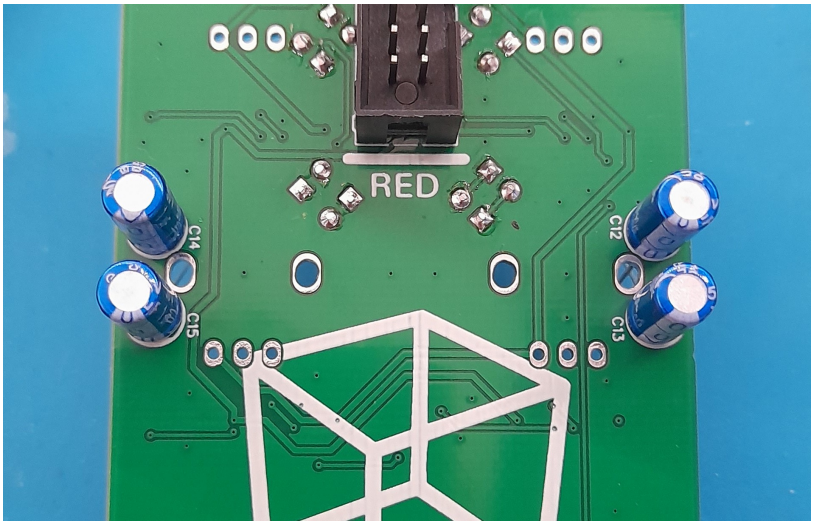
STEP 2
Power Header

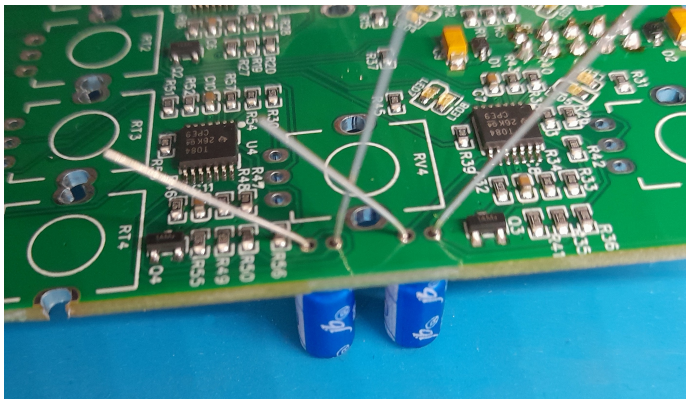
Place the Pin Header for Power like shown here.
Orientation of the Power Header is very important to be able to insert the power cable the correct way.
Put some tape, to hold it in place while soldering from the other side.
You can also solder only one pin, while holding the Power header in place. Then solder the remaining Pins.



STEP 3
Electrolytic capacitors

Place the capacitors on the PCB with the white line of the capacitor facing down towards the white mark on the PCB. The longer leg of the capacitor goes through the hole marked with "+"
You can bend the solder legs outwards, like shown below, to keep them from falling out.
Then solder and cut the legs.





You can easily customize the LFO speeds to your taste. Choosing larger capacitors will make the LFO slower. You can also choose a different value for each of the four LFOs.

Here is some capacitor values with LFO times / frequency ranges:

cap. Value	seconds	frequency (hz)
10uf:	140~5 sec	0.007~0.2 hz
4.7uf:	70~2.5 sec	0.014~0.4 hz
1uf:	14~0.5 sec	0.07~2 hz
0.1uf:	0.5~0.014 sec	2~70 hz

LFO 1 - capacitor C12
LFO 2 - capacitor C13
LFO 3 - capacitor C14
LFO 4 - capacitor C15

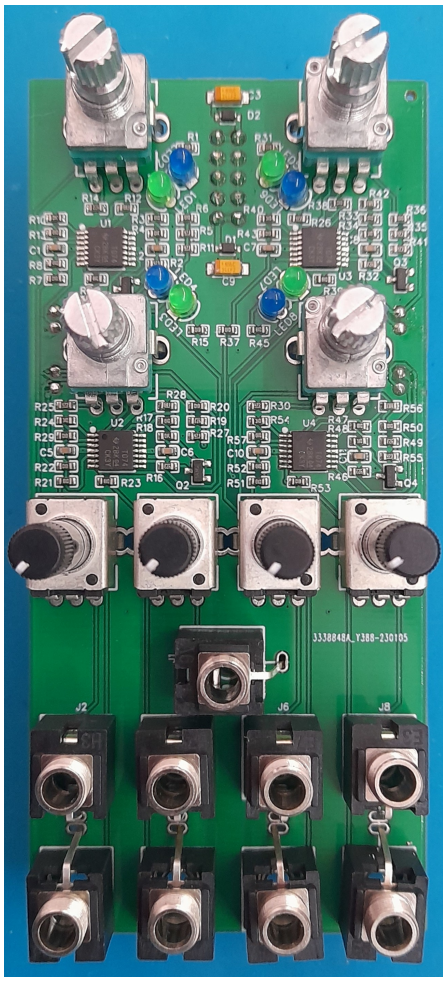
STEP 4
Controls

Now take the Potentiometers and jacks and put them in place as marked on the PCB but don't solder yet.

In the picture you can see the placement.

When everything is in place, take the front panel and put it on top, so all controls go into each corresponding hole of the panel. "wiggle" the front panel into place and make sure everything fits well.

Fit all nuts to the Potentiometers and the Jacks.
Be careful when turning the boards around, so that all the components stay in place.
Then solder everything.



STEP 4
final check

Check your soldering. If you see shorts or bad solder joints, fix it up. Then check the power pins for shorts with your multimeter. If everything looks fine, you can place the knobs, so the pointer is correctly orientated and push them down.

Now you can install the module in your rack and have fun patching!

Help

Please understand that we can't guarantee for your DIY module to work. Nevertheless we will do our best to guide you through the build or to solve problems when needed.

In case there should be parts missing in your Full DIY kits contact us to ask for replacement /

If you have trouble with your build, you can contact us at:

cubusynth@gmail.com

To be able to identify mistakes in your build, please include high quality pictures of your soldered PCBs, front+back.

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