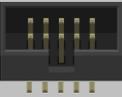


## THANKS FOR CHOOSING ONE OF OUR SEMI KITS!

What you have here is a semi kit, where all components are soldered in the boards and you will be doing the final assembly of mechanical components, testing and calibration.

<b>POWER CONNECTOR</b>	
Solder the power connector at his place, market by footprint, ensuring it is facing in from the edge of the PCB. The small arrow on the connectors must be on the side with the thick white line.	

<b>FADER</b>
Solder the fader onto the PCB at the position indicated by the silkscreen (on the opposite side of the power connector). Ensure this is totally straight. Other wise this will touch the panel slots. If necessary, cut the pins of all components underneath, until the surface is sufficiently flat (taking care of not destroy the solder joints)

<b>SWITCHES</b>		
The correct placement of those switches is critical so please follow the next steps carefully.		
<ul style="list-style-type: none"> <li>- Place the switches <b>flush</b> to the PCB and solder just one of the middle points of them.</li> <li>- Attach the front panel with just the pot nut and one jack nut.</li> <li>- Check the correct travel and height of the switches. If it travels smoothly, solder the rest of the joints and continue with the Front Panel.</li> <li>- If the travel of the switch is not smooth (i.e: one of the sides touch the edge of the front panel), correct its position by heating the joint and pushing the switch at the same time. Don't heat it without pressing it from the opposite side or the switch will fall against the Front Panel, remember it needs to be <b>flush</b> to the PCB.</li> </ul>		
Qty	Type	Name on PCB
2	Mini. Dual circuit 4 position	SW1, SW2
1	Mini. One circuit 7 position	Oct

<b>POT WASHER</b>
Place the washer on the Frequency pot.

<b>FRONT PANEL</b>
<p>Attach the <b>front panel</b> carefully being sure that is completely parallel to the PCB. To finish:</p> <ul style="list-style-type: none"> <li>- Screw in the parts in this order: A) <b>Mini-jacks</b> B) <b>Pot</b></li> <li>- Ensuring all of the above parts are flush with the panel.</li> <li>- make sure switches and fader are straight and not touching the panel and solder them.</li> <li>- Put the <b>knob</b> on the potentiometer.</li> </ul> <p>- Connect the <b>power ribbon cable</b>: The red wire (-12V) on the power ribbon cable corresponds to pin number one on the male power connector. A white or black line (or "-12V") marked on your power bus normally indicates the corresponding pin.</p>

## CALIBRATION

To calibrate the VCO we will need a 0.5mm Flat Screwdriver, a Digital Multimeter (6000 counts or more would be the ideal for a very precise calibration but is not mandatory) and a Tuner. Any audio interface with a software tuner will do the job. Before start with the calibration process, **power up the module and leave it warming up for 15 minutes**. Once done, we can start with the procedure.

1- Take a look to the back of the module where you should see three Trim-pots. **The bottom right one is V-Ref, the upper ones are Init (left) and V/Oct (right)**.

2- Pick your multimeter and select DC Voltage mode (typically marked as V=). Connect the black probe to a Ground point (you can use the sleeve of patch cable connected to any other module) and place the red probe touching the point marked in the following photo:

You should read a value around 2.5V. Adjust carefully V-Ref trim-pot till you see **2.500V exactly**. If you have a good multimeter (6000 counts or more) that shows you 4 zeros, you will be able to adjust this even more accurately.

3- Place the Freq Pot to middle position, the Octave switch to the second position (C2) and the Timbre slider to minimum position. Select the Sine waveform and put the Range switch on Semitone Range position. Double check all the controls and if all is on its right spot, go to the next step.

During the next two steps, be sure to not move Freq and Timbre controls. As those controls affects the frequency, any move on them will affect to your readings.

4- Connect the output of the module to the input of your Tuner and check the note that it shows you. Should be close to C2. Adjust the Init trim-pot till you get C2 and 0 cents.

5- Move up the Octave switch to the fifth position (marked with 0 on the front panel) and check the Tuner. The note should be close to C5. Adjust V/Oct trim-pot carefully till you get C5 and 0 cents.

Come back to C2 position on the Octave switch and check the tuner.

If it shows you an accurate C2 (between 0-5 cents), check the rest of the octaves. You should get a C1 to C7 with similar accuracy.

If not (which would be the most regular case), **repeat steps 4 and 5 till you get a good accuracy on every octave**.

This process is based on iterations of steps 4 and 5 so don't worry if takes a bit to get the right tuning. The number of iterations needed to get a good calibration is different on every unit.