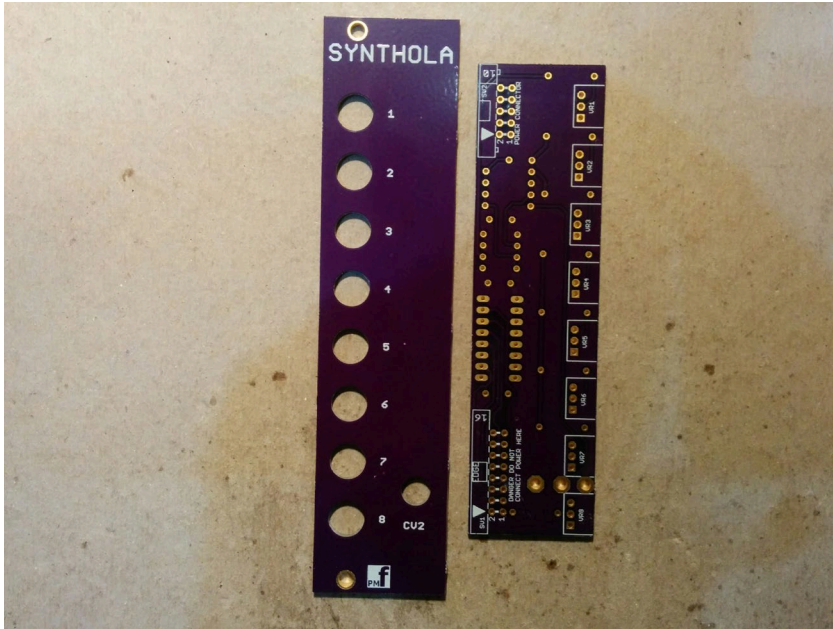


Synthola 2ndRow V1.2 – Assembly Guide

Thank you for purchasing this module! This is an easy build. Some of the pads are quite small and you will need a chisel tip or screwdriver tip soldering iron and the skill to solder these tiny joints. This guide is also used for building the [Synthola 16X3 with 54hp panel](#). You can ignore instructions for that product if you are not building the Synthola 16X3 with 54hp panel.



The module is designed and sized for **Euro rack** systems. You will need a Synthola Sequencer base module. You will need a 16-10 pin euro rack power ribbon connector with $-12/0/+12$ which is connected to a synth power supply.

You will also need a 10-16 pin connector for connecting the 2ndRow to the main control board. Follow the parts lists, these instructions and the PCB silkscreen text to build the module.

This 2ndRow board will extend your Synthola Swuencer so that you can have two different CVs for each of the 8 Steps.

There are components installed on BOTH sides of the boards. Please ensure that you place the components on the correct side. When referring to the TOP of a board we mean the side with the **pmF** logo. The BOTTOM has no logo.

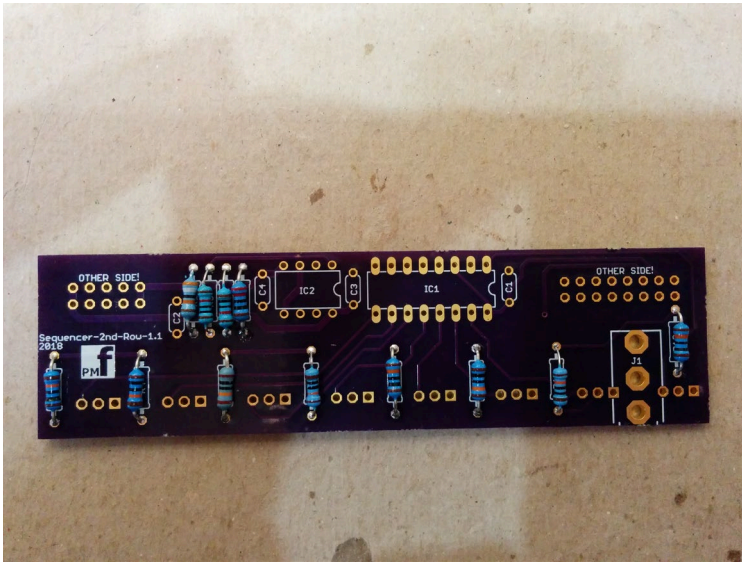
You may need to clean up the board edges with wire cutters and/or a file to remove the remains of the tabs from the fabrication process. This is particularly important for the edges containing the jacks. These edges will need to mate flush with the front panel.

You must follow the order of assembly as described below since some components will be soldered underneath other components.

[Some parts are not installed when building the Synthola 16X3 with 54hp panel. Please refer Synthola 16X3 Assembly Guide for detailed instructions.](#)

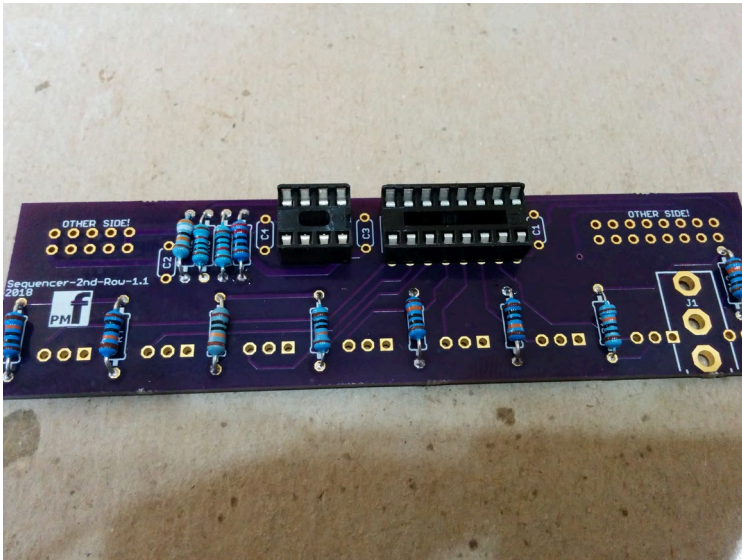
1. Resistors

Install the flat resistors on the TOP of the board. Solder and clip the leads.



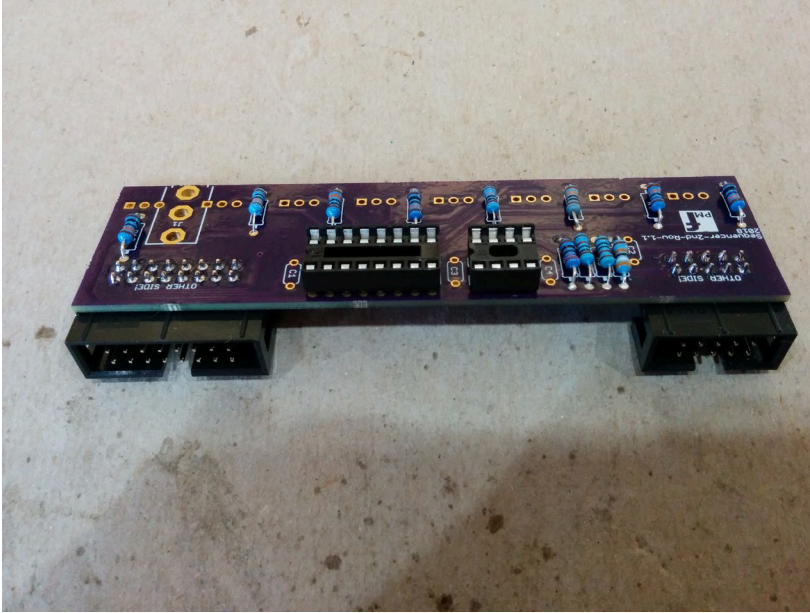
2. IC Sockets

Install the IC sockets on the TOP of the board. Observe the notch or mark on the sockets and align with the notch or mark on the board. Solder.



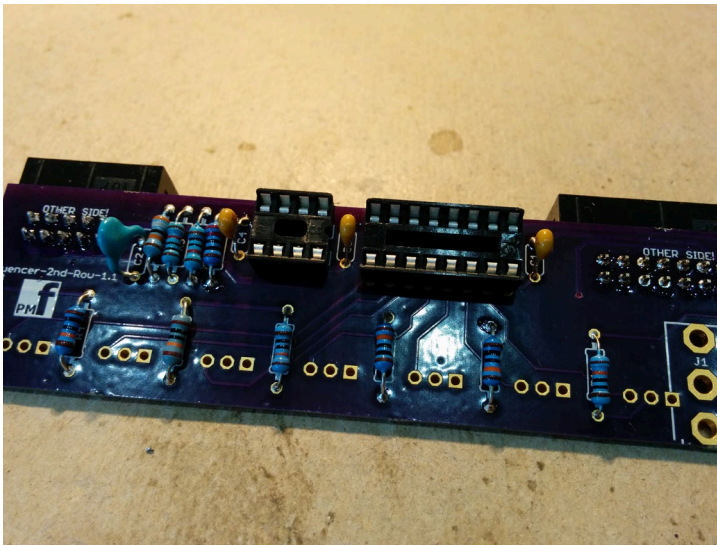
3. Interconnect socket and power socket

Install the 16 pin interconnect socket on the BOTTOM of the board. The socket should face OUT from the board. Solder. There is also a 10 pin socket to correctly directly to the power supply.



4. Ceramic/film capacitors

Install the ceramic/film capacitors on the TOP of the board. Solder and clip the leads.

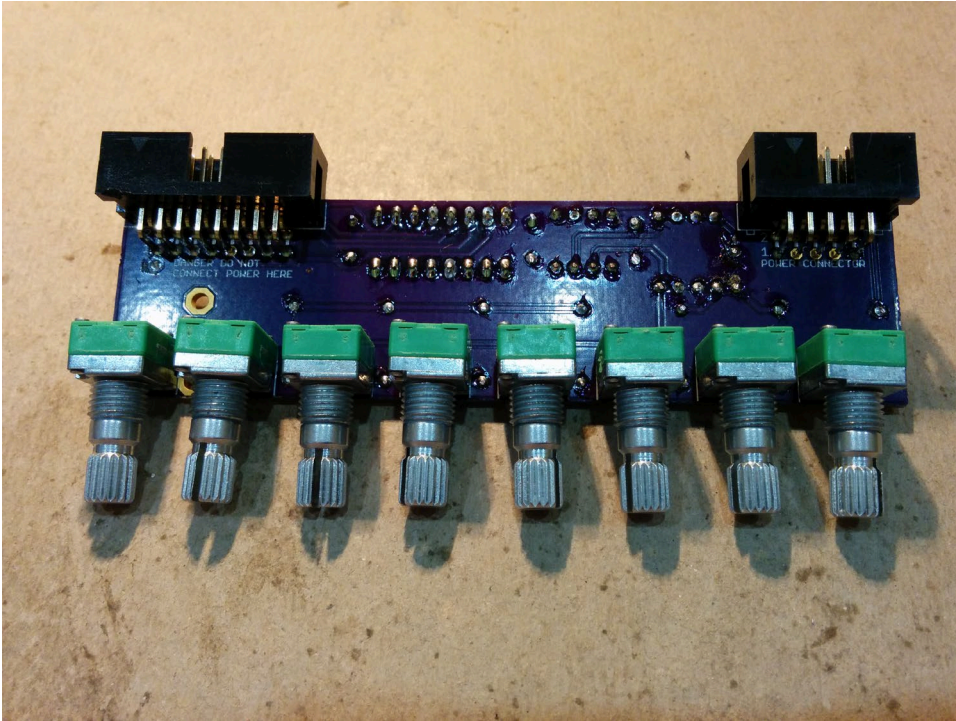


5. Potentiometers

If the pots have positioning lugs on the front, cut these off with a sharp pair of flush cutting pliers. The front of the pot (where the shaft protrudes) needs to be flat.

Install on the bottom. Carefully align the pots so they are flush with the edge of the board and perfectly upright and tight to the board surface. Tack one pin only of each pot with solder.

Please ensure they are on the CORRECT SIDE OF THE BOARD. See Photo.



6. Alignment

Place the front panel over the board so that the pots align with the holes in the panel.

Put nuts on the pots and **FULLY TIGHTEN** all of them. Do not overtighten!

Now fully solder all the pins of the pots. Finally trim the four pins of the pots nearest the jack

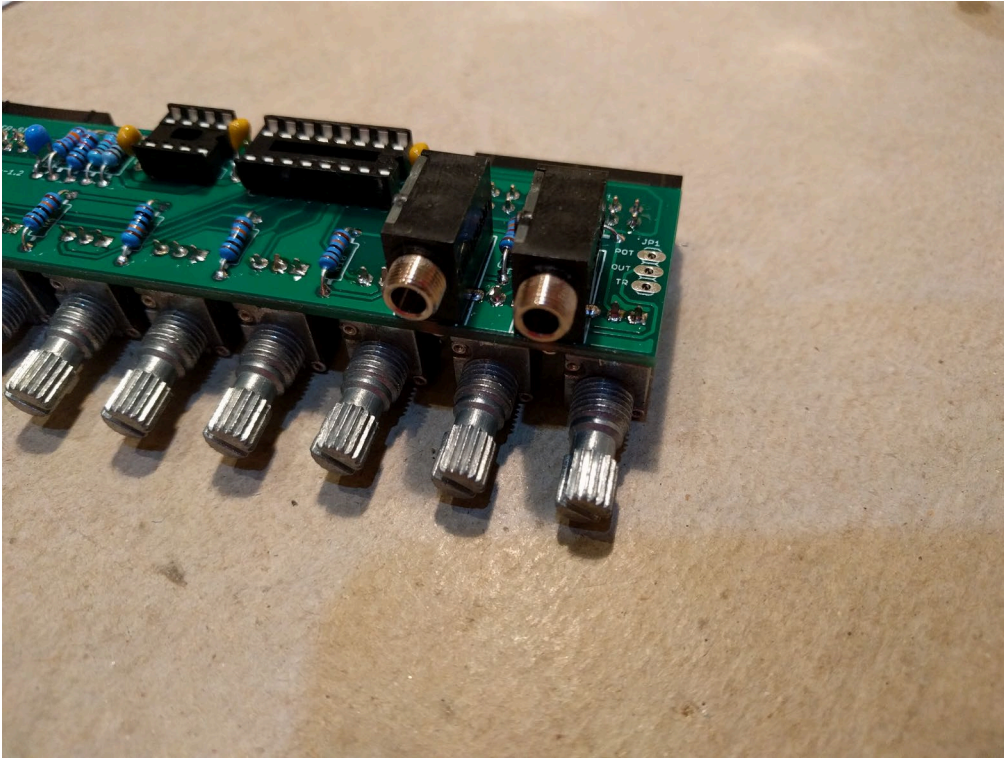
sockets so that the jack sockets can be installed as close as possible to the board.



7. 3.5mm Jack Sockets

Install the jacks on the TOP. They need to be flush with the board and if necessary the nearby pot pins will need to be trimmed to enable this. Now fully solder all three pins of the jacks, being careful to angle the iron away from the pot shafts when soldering the jack pin nearest the edge

of the board.



Voltage tests

1. You do not have to do these tests if you are completely happy with your soldering and are sure there are no bridges or incorrectly placed components. However, these tests will ensure that the correct power supplies are sent to the IC pins to ensure they will not be damaged on power up.
2. Connect the Control board to the 2ndRow board using the 10-16 pin connector.
3. Connect the power to the CONTROL BOARD (previously constructed).
4. Connect the power to the 2ndRow board.
5. Take care to read the silk screen next to the ribbon cable connectors on both boards to ensure the power connectors and interconnects are connected to the correct sockets.
6. Connect the -VE probe of a multimeter set to the 20V range to a suitable GND pin somewhere on the board.
7. Check the voltage at the following points on the empty IC sockets on the board:
 - a. At IC1 pin 16 = +3V3
 - b. IC1 pin 3 approx = +3V3
 - c. IC1 pin 8 = 0 V
 - d. IC2 pin 8 = +12V
 - e. IC2 pin 4 approx = -12V
 - f. IC2 pins 3 = 0 V

- g. IC2 pin 5 = 0 V
- 8. If any of these tests fail to match the readings given, you should check the components and soldering before progressing.

Final Assembly

1. Place the ICs in place by aligning the notch with the notch graphic on the PCB Silk Screen and notch on the socket.
2. Place the front panel over the PCB so that the pots, and jack align with the holes in the panel.
Skip this step if you are building the Synthola 16X3 with 54hp panel.
3. Put nuts on the pots and jack and FULLY TIGHTEN all of them. Do not overtighten! *Skip this step if you are building the Synthola 16X3 with 54hp panel.*



4. Install the knobs. *Skip this step if you are building the Synthola 16X3 with 54hp panel.*
5. **NOW READ THE USER GUIDE FOR THE SYNTHOLA SEQUENCER AGAIN**