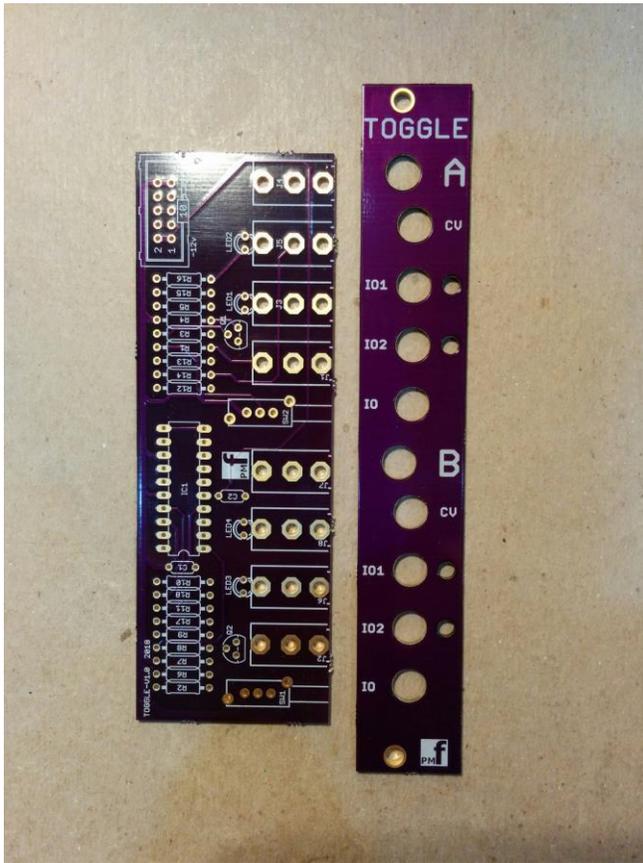


# Toggle v1.0 – Assembly Guide

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Thank you for purchasing this module! This is an average build with some precision integrated circuits. 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.

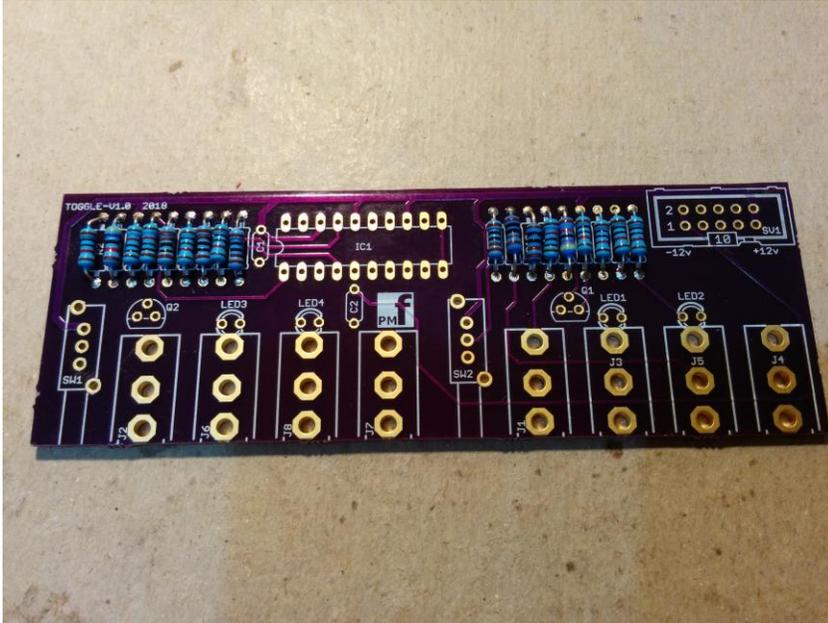


The module is designed and sized for **Euro rack** systems. You will need a 16-10 pin eurorack power ribbon connector with  $-12/0/+12$  which is connected to a synth power supply. Follow the parts lists, these instructions and the PCB silkscreen text to build the module. The module consists of 1 PCB board and a front panel. You must follow the order of assembly as described below since some components will be soldered underneath other components.

## Constructing the board

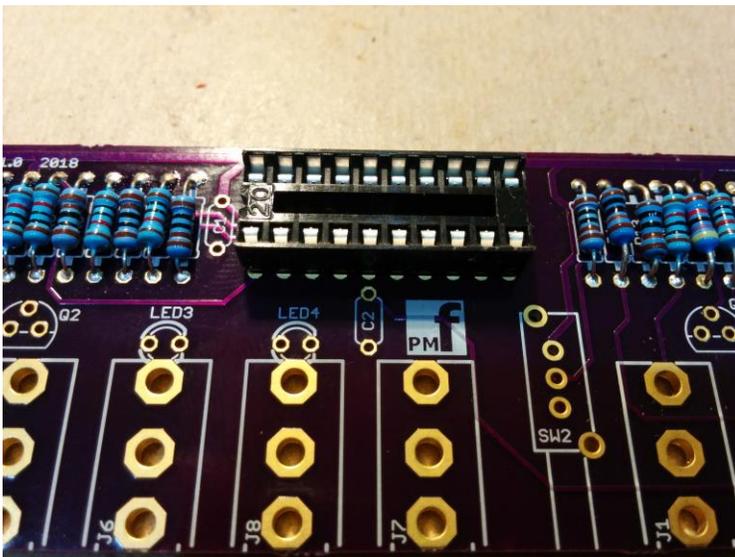
### 1. Resistors

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



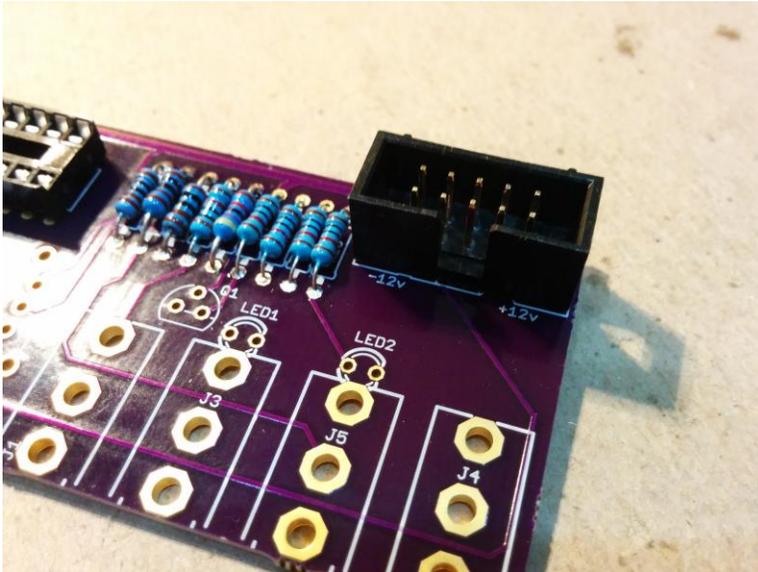
### 2. IC Socket

Now Install the socket on the TOP of the board. Observe the notch or mark on the socket and align with the notch or mark on the board. Solder.



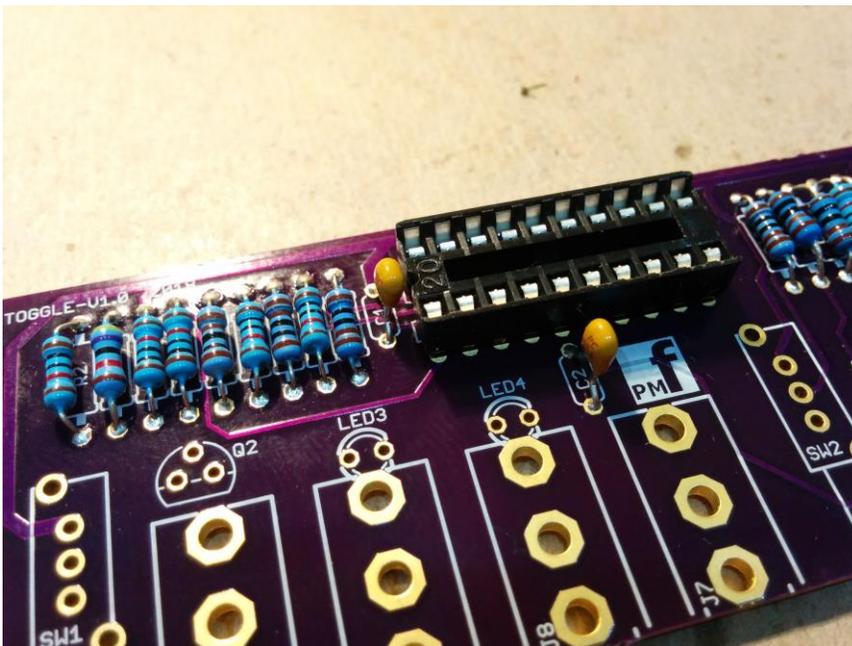
### 3. Power socket

Install the 10 pin power socket on the TOP of the board. **This must be installed with the correct orientation or the module will be damaged when the power is connected.**  
The cut-out in the socket should face the jacks. Solder on the underside.



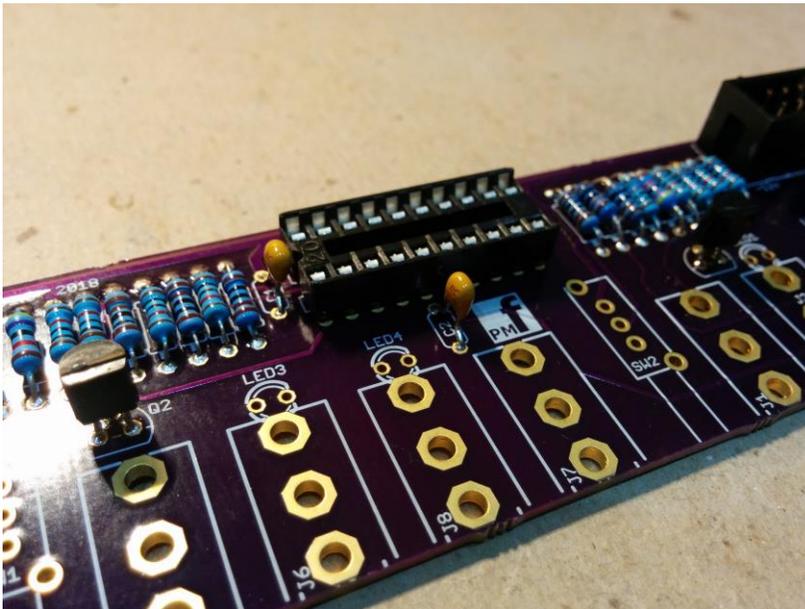
4. Ceramic/film/polypropylene capacitors

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



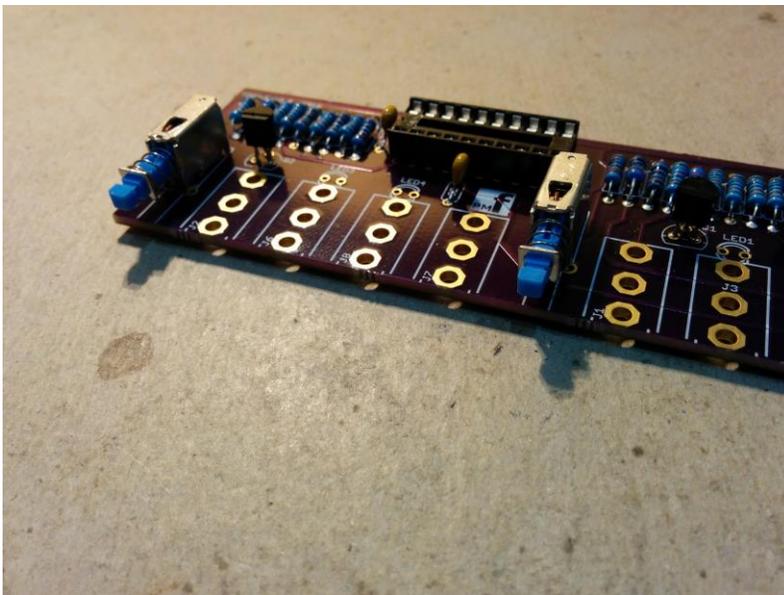
5. Transistors

Install the transistors on the TOP of the board. These are polarized components. Align the outline with the outline on the board. Solder and clip the leads.



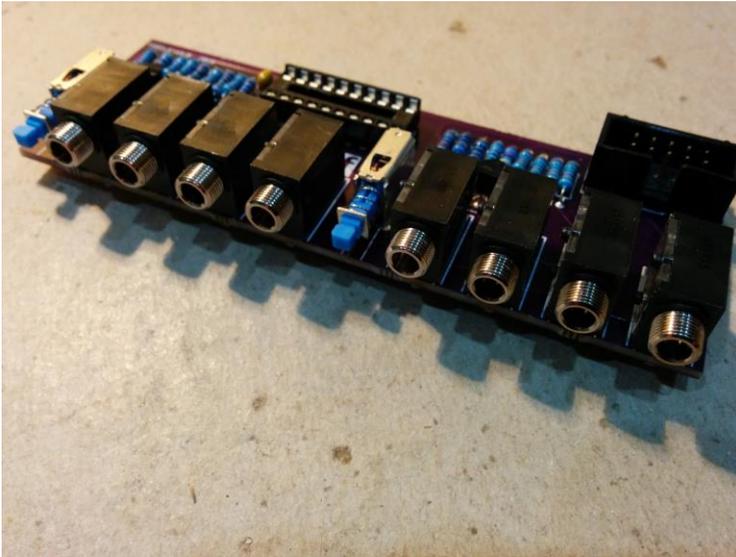
6. Switches

Tack one pin of the switch, align with the front panel, then solder all the remaining pins and the locating lugs.



## 7. 3.5mm Jack Sockets

Tack one pin of each only with solder. These will be finalized later. Please ensure they are on the CORRECT SIDE OF THE BOARD.



## 8. Alignment

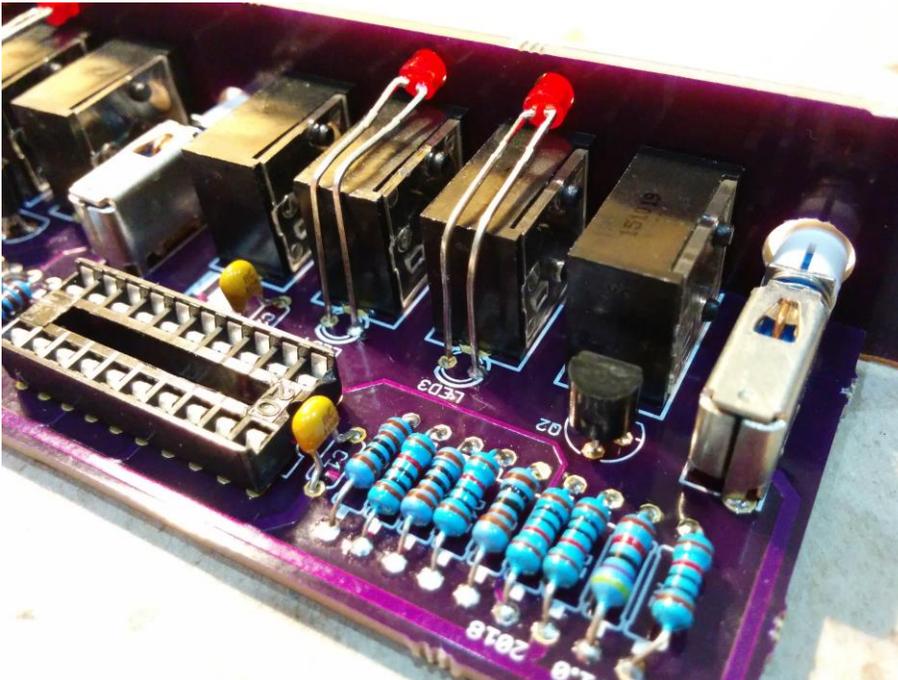
1. Place the front panel over the board so that the 3.5mm jacks and pot align with the holes in the panel.
2. Put nuts on the jacks and FULLY TIGHTEN all of them. Do not overtighten!
3. Now fully solder as many pins as you can reach of each jack and switch.
4. Remove the front panel and solder all the remaining pins on the jacks and switches.
5. Cut the pins of the jack sockets below the panel edge to avoid contact with other modules in your rack.

9. LEDs

Bend the pins of the LEDs as shown in the photo. The bend is at 12.5mm (1/2") from the underside of the LED. Note the location of the longest lead.



Use the panel to guide the position of the LEDs.  
Insert from the top and solder on the bottom. Clip the leads.



10. If you do not trust all your soldering and connections, carry out the voltage tests below before installing the ICs.

## 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. Plug in the power supply and connect the –VE probe of a multimeter (set to the 20V DC range) to one of the GROUND pins of the jacks. The GROUND pin is nearest to the edge of the board.
3. Check the voltage at the following points on the board:
  - a. At IC1 pin 13, 16, 18 approx = +12V
  - b. At IC1 pin 5= -12V
  - c. At IC1 pin 6 approx = 0V
  - d. All other pins should not show anything close to +12V or -12V
4. 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 IC in place by aligning the notch with the notch graphic on the PCB Silk Screen and notch on the socket.
2. Put the caps on the switches by pushing each cap until it clicks.

