

RYK NIGHT RIDER - DIY KITT BUILD GUIDE

Thanks very much for purchasing the NIGHT RIDER KITT !

The majority of components are already surface mounted onto the PCBS.

These parts are quite densely placed and some are quite near to the solder points, the build requires skill and precise soldering to complete successfully.

To build the kit you will need the following:

[DO NOT attempt to build this kit without them]

- Two mini clamps
- Clean high quality 2/3mm tip solder iron [chisel type recommended]
- Small Phillips screwdriver suitable for M3 & M2 pan heads.

CONTENTS OF KIT

- 1 x User manual
- 1 x NIGHT RIDER MAIN PCB
- 1 x LED PCB with White Diffusion tape
- 1 x NIGHT RIDER 2mm aluminium panel
- 1 x 2 channel splitter cable (for stereo input)
- 1 x USB micro data cable
- 1 x Eurorack power cable
- Screws & Washers for Eurorack case

BAG C

- 6 x black jack sockets (MONO)
- 2 x green jack socket (STEREO)
- 8 x RYK ORIGINAL blackjack nuts
- 1 x 10pin Male Box header
- 2 x M3 - 8mm black nylon screws
- 1 x M2 - 12mm silver screws
- 1 x M3 - 7mm white spacer
- 1 x M2 Hex nut 1mm thick
- 1 x 6 pin Female header
- 1 x 6 pin Male header
- 2 x 0.5mm thickness black PVC washer

BAG D

- 1 x black push button
- 1 x grey push button
- 1 x red push button
- 1 x DC Converter

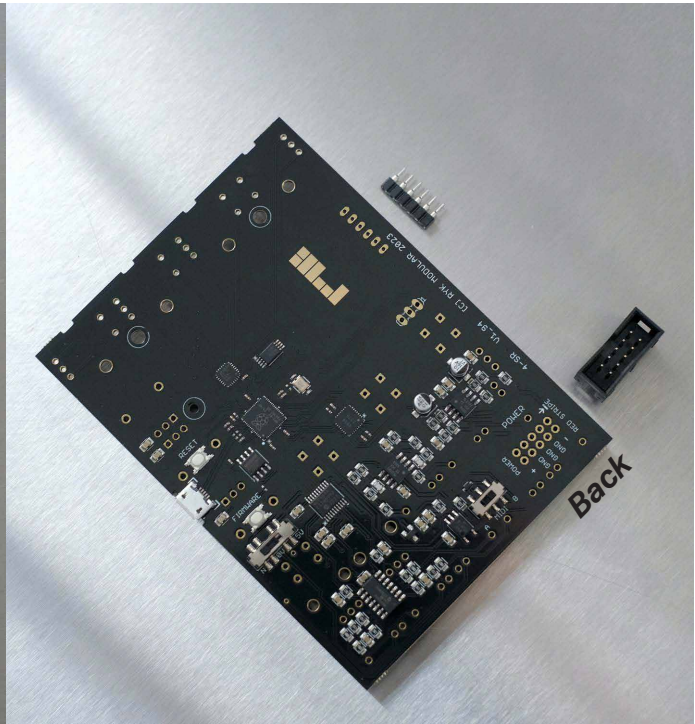
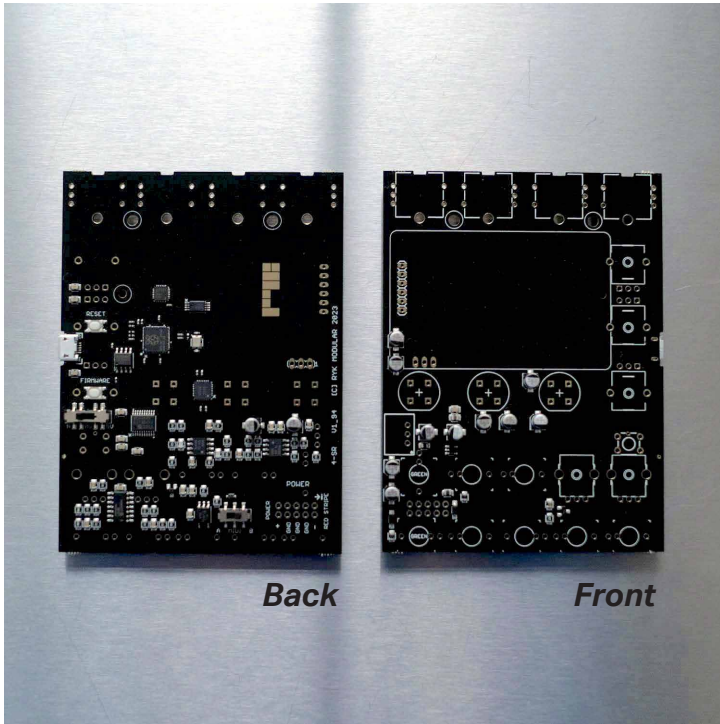
BAG E

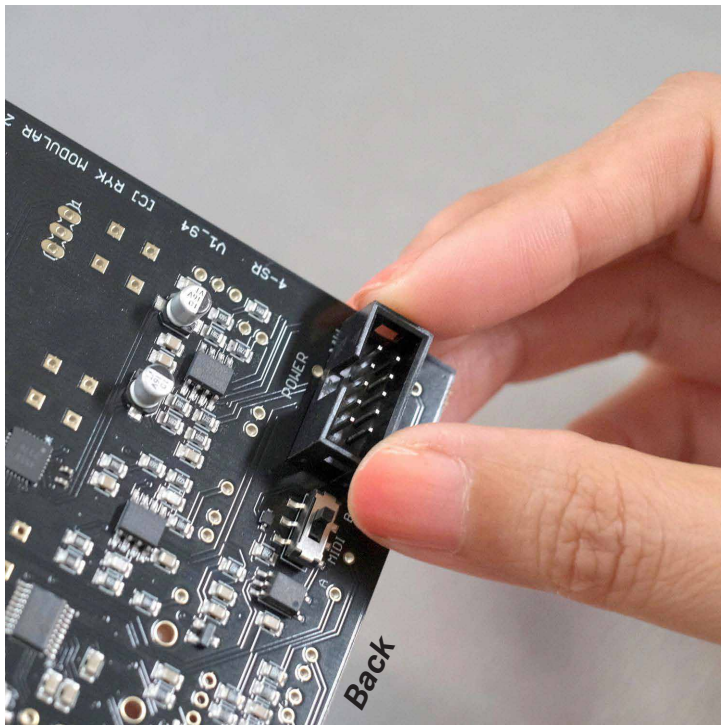
- 4 x rotary encoders
- 3 x rotary potentiometers 50k
- 2 x rotary trimmer potentiometers 50k
- 1 x black tall micro push button

BAG F

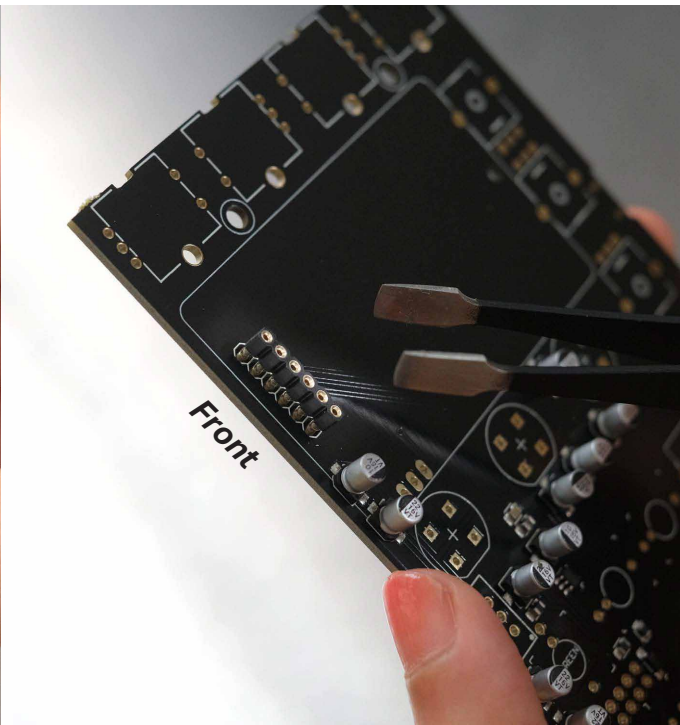
- 4 x black plastic knobs (no markings)
- 4 x white OD5mm spacer for above knobs
- 3 x black plastic knobs (with white markings)



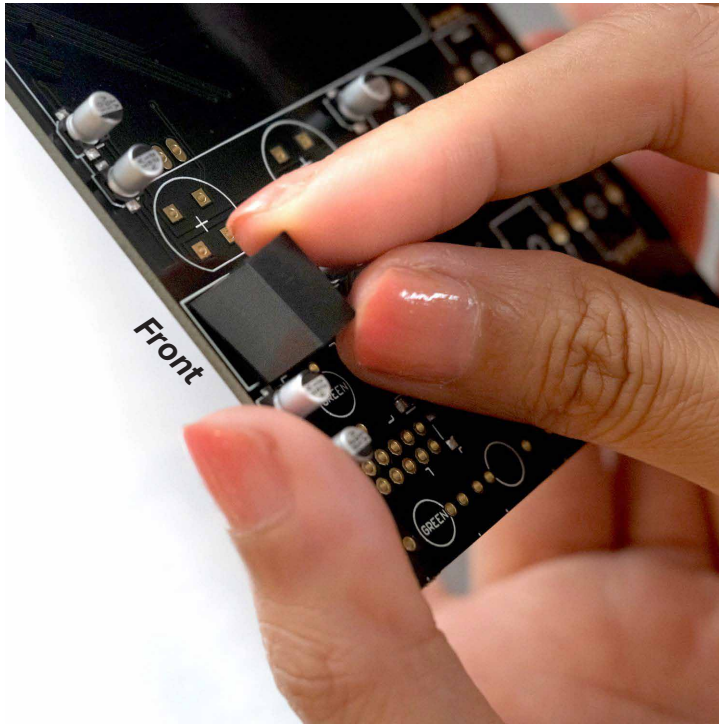




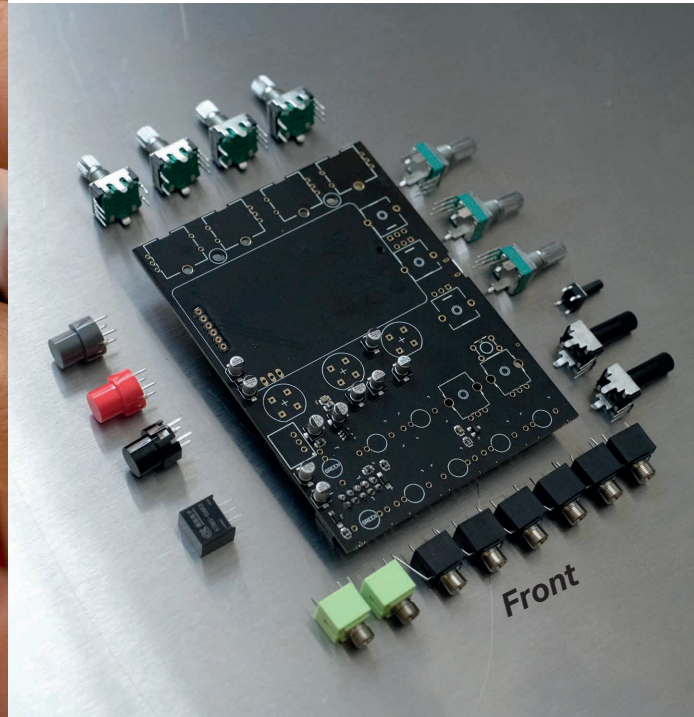
1. Insert the 10-Pin Boxed male header onto the **back** of the PCB, you can hold it in place with some sponge (not included) whilst soldering from the topside of the PCB. Be careful not to heat too long, as the plastic of the headers can melt easily.



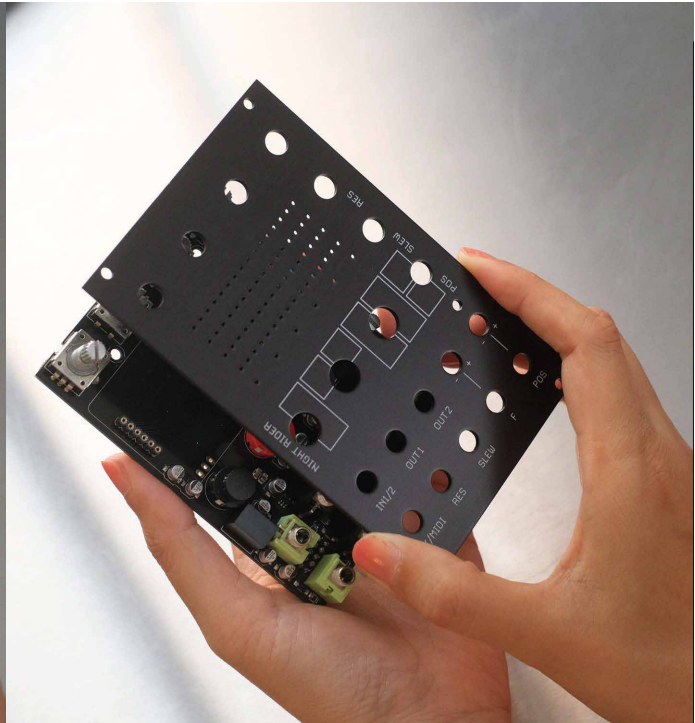
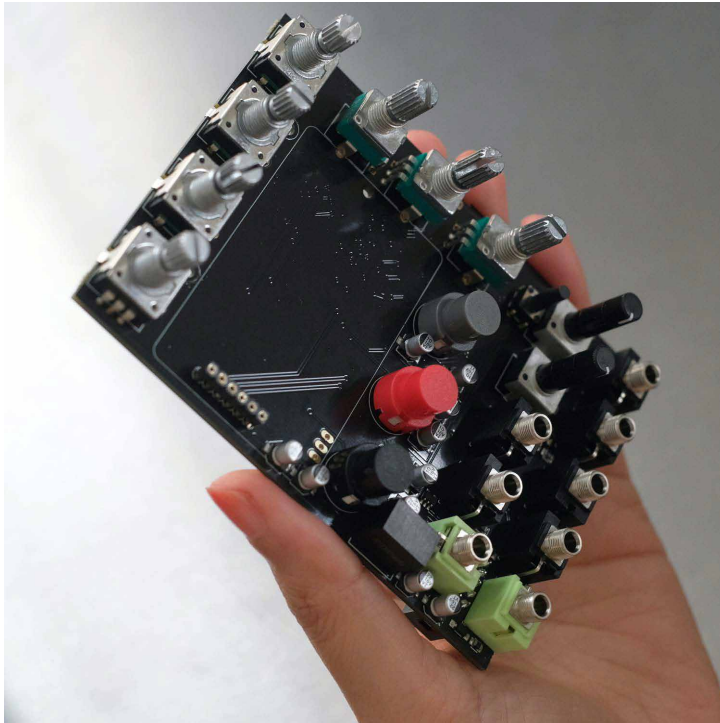
2. Then Insert the 6-Pin Female header onto the **front** of the PCB and solder from behind.



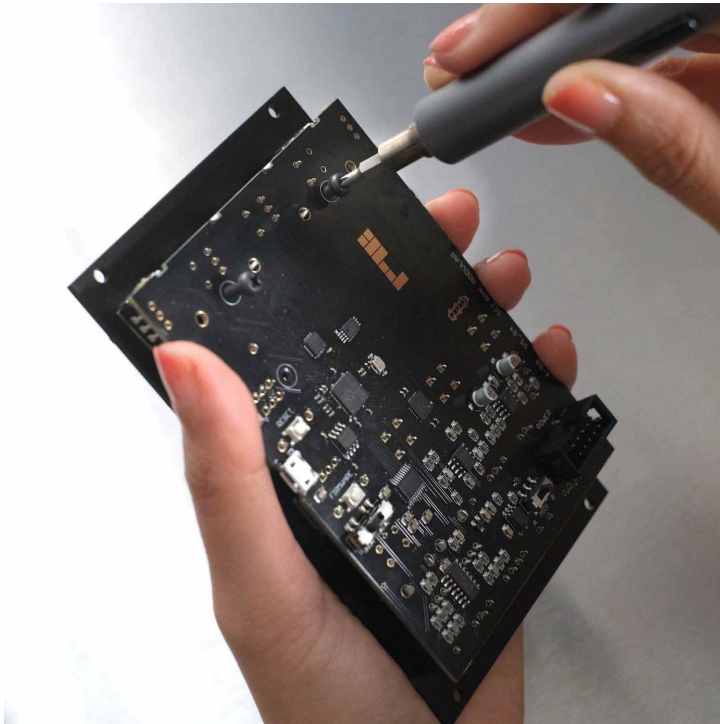
3. Next take the DC converter [small black box with 3 legs **BAG B**] and place on the front of the PCB, and solder from behind. Make sure it sits flush against the PCB, and is aligned within defined box shape on the PCB



4. Insert the 4 encoder units and 3 rotary potentiometers into the front of the PCB [**BAG E**], push them firmly into place, making sure they are flush with the PCB. Next insert the push button switches [**BAG D**], making sure they are orientated so the flat edge is aligned with the outline drawing on the PCB. Insert the thin black push button (there is no orientation for this part) and insert the 2 rotary trimmer potentiometers into place [**BAG E**], make sure they are flush with the PCB. Then insert the 6 black jack sockets onto the PCB, as shown, followed by the 2 green jack sockets [**BAG C**].

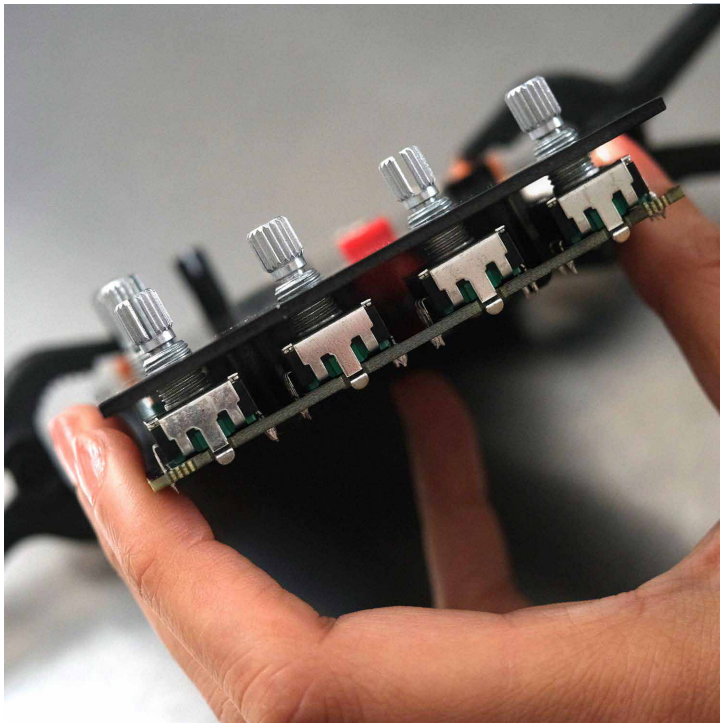


5. Place the panel carefully over the parts, make sure everything fits thought the holes correctly (including the tall micro push switch)

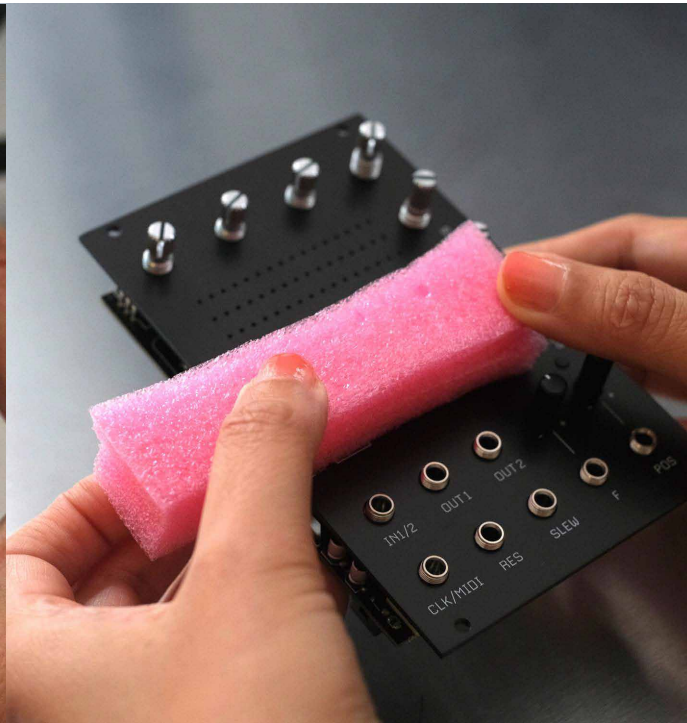


6. Using the 2 x M3 - 8mm black nylon screws, screw the PCB to the panel from behind. Tighten the screws enough to hold the panel tightly against the PCB, do not over tighten

7. Place two mini clamps on either side of the panel, near the bottom end where the jack sockets are located. Check the panel is firmly holding the jacks in place.



8. Solder the 4 rotary encoders, Making sure they are flush with the PCB [not panel].
Then solder the 3 rotary potentiometers, which should be flush with the PCB and panel.

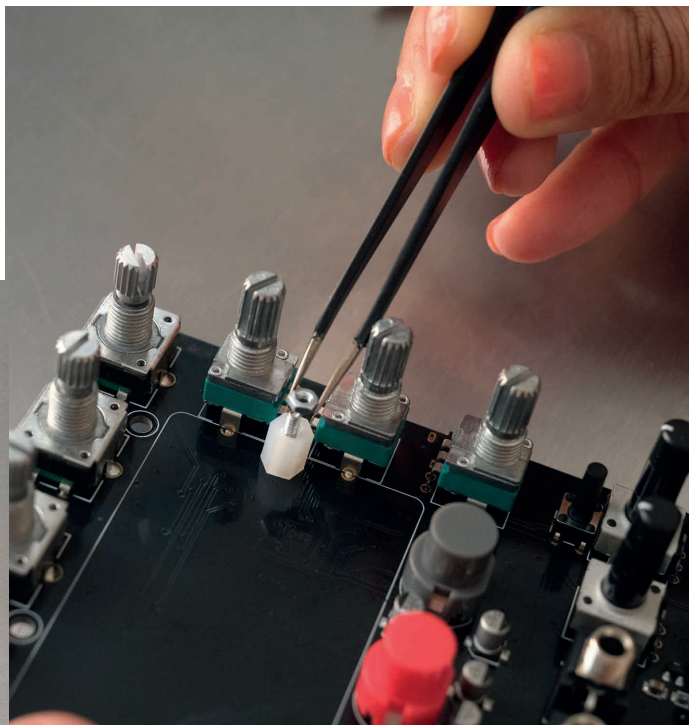
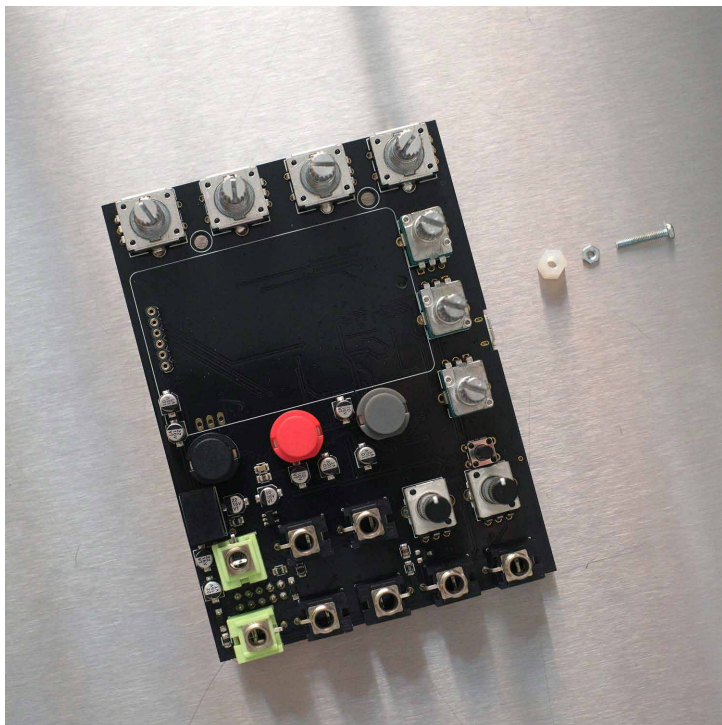


9. Cut a strip of the some sponge (not included) wide enough to cover all the push button switches. The sponge needs to be taller than trimmer pots. Place the sponge stripe against the front of the push switches, then lay the unit with the sponge face down on your work-surface. Make sure the layers of sponge are pushing the switches firmly against the PCB. Solder the switches from behind.

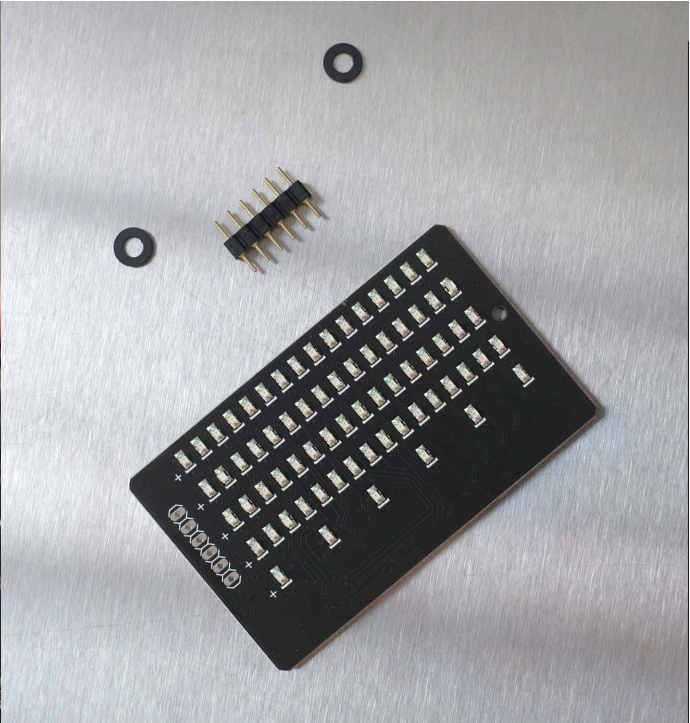
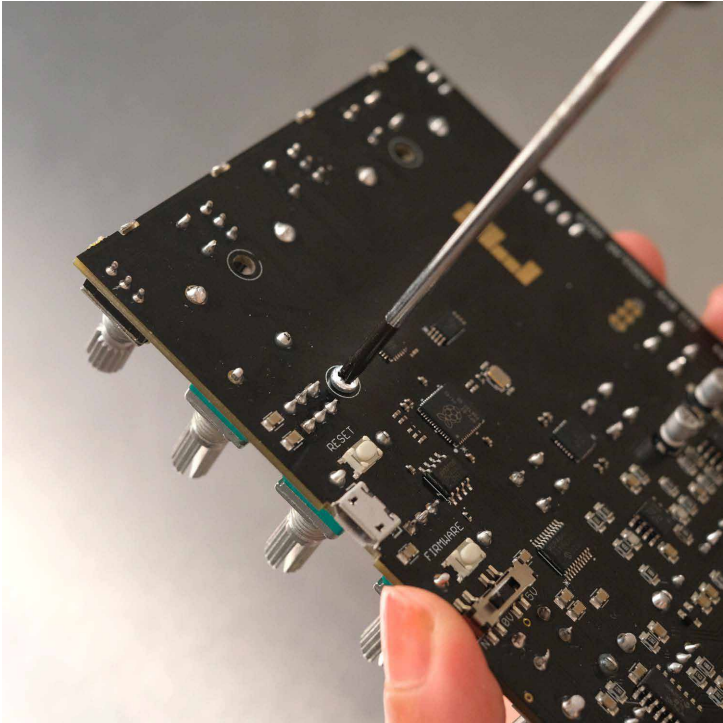
10. Next solder the 2 trimmer potentiometers, making sure they are flush with the PCB, and their shaft turns smoothly within the panel hole.

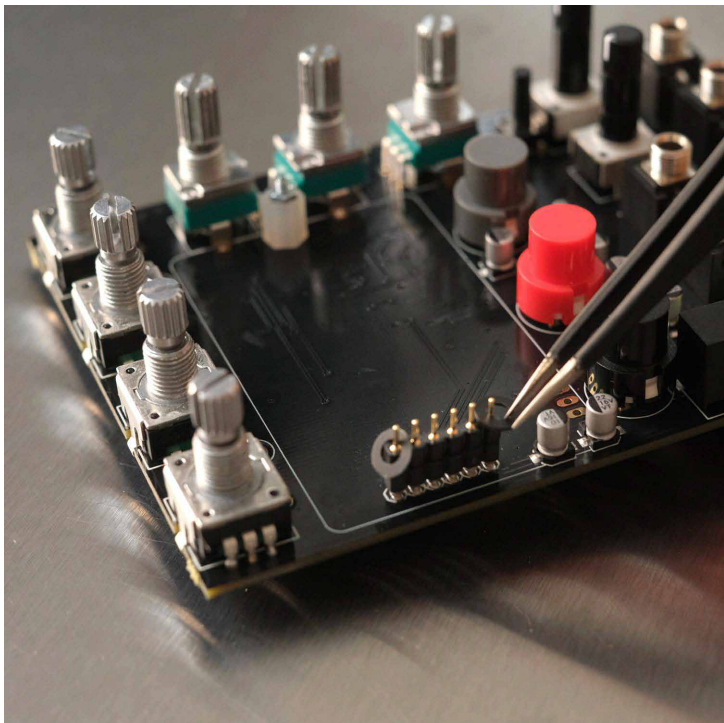
Lastly solder the 6 black jack sockets, and the 2 green jack sockets.

11. Unscrew the screws for the Front panel, and take off the panel.

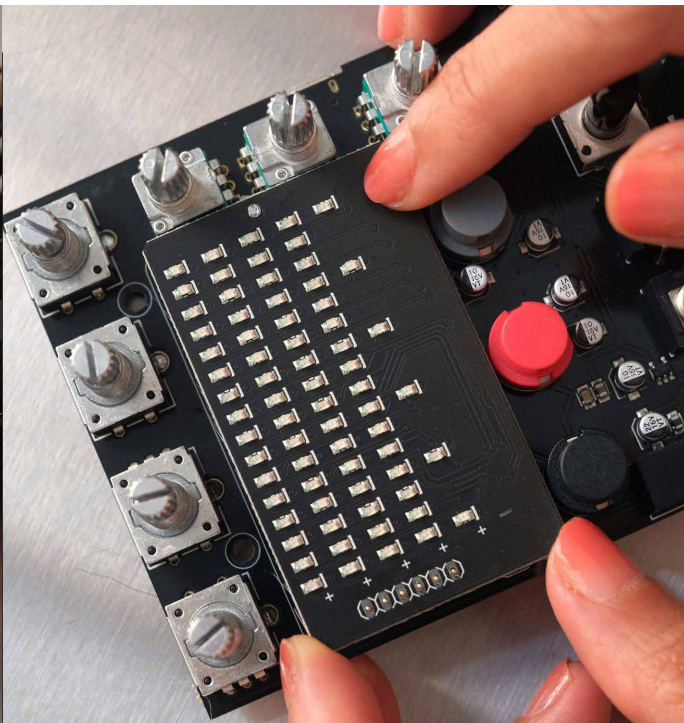


12. Place the M2 screw through the back of the PCB, and place the 7mm hex spacer on top of the screw on the top side of the PCB. Attach the M2 nut, and tighten the screw from behind.



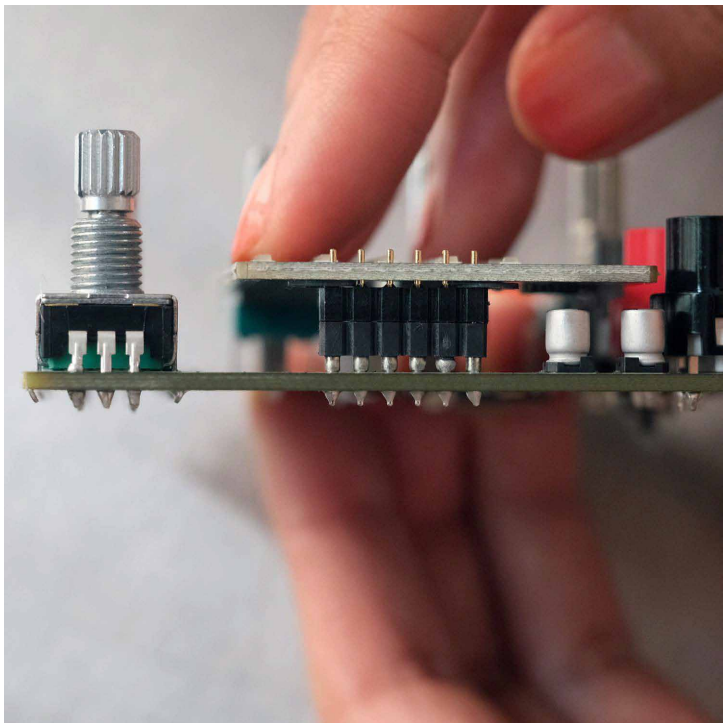


13. Carefully insert the 6-pin male header into the 6-pin header that is soldered on the top side of the PCB. Make sure it is firmly seated. Place the two thin black washers on each end pin of the pin header.

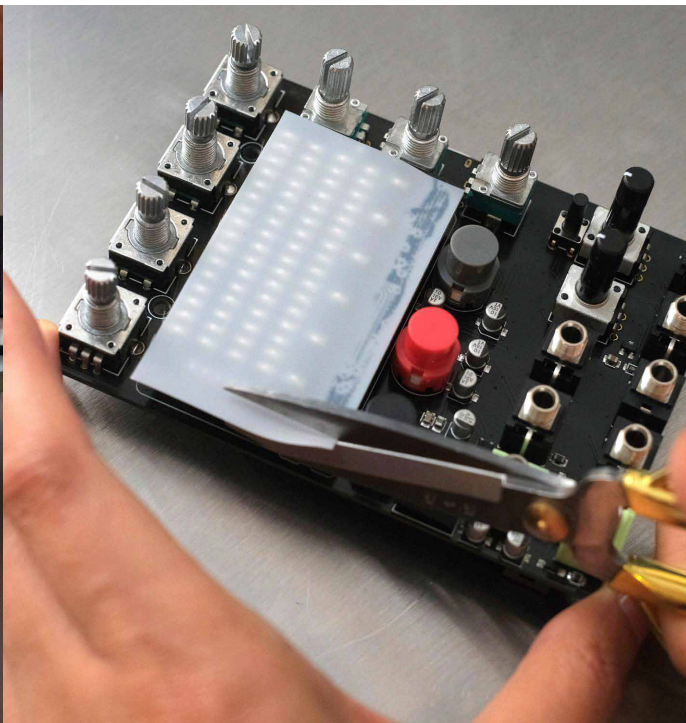


14. Place the LED PCB over the 6-pin header, and align the other end so the hole in the PCB clicks into place over the protruding end of the M2 screw.

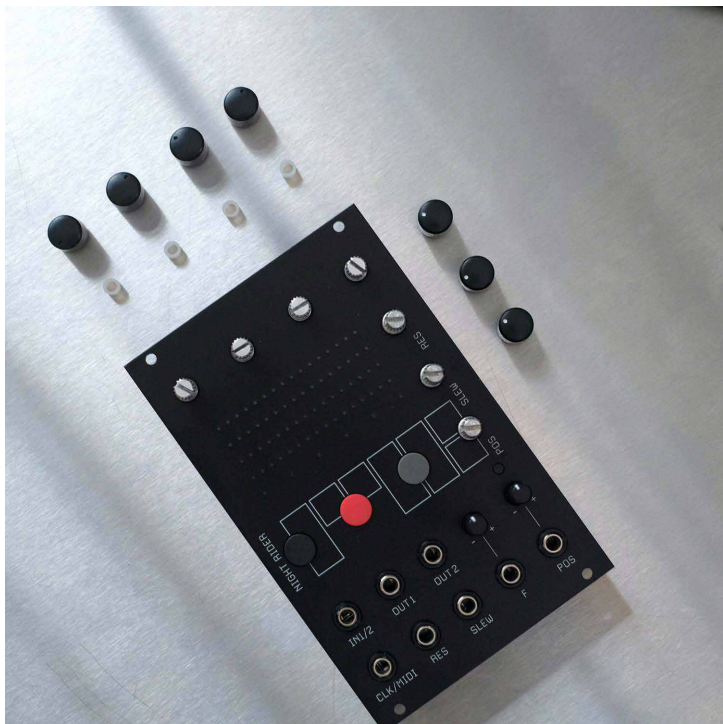




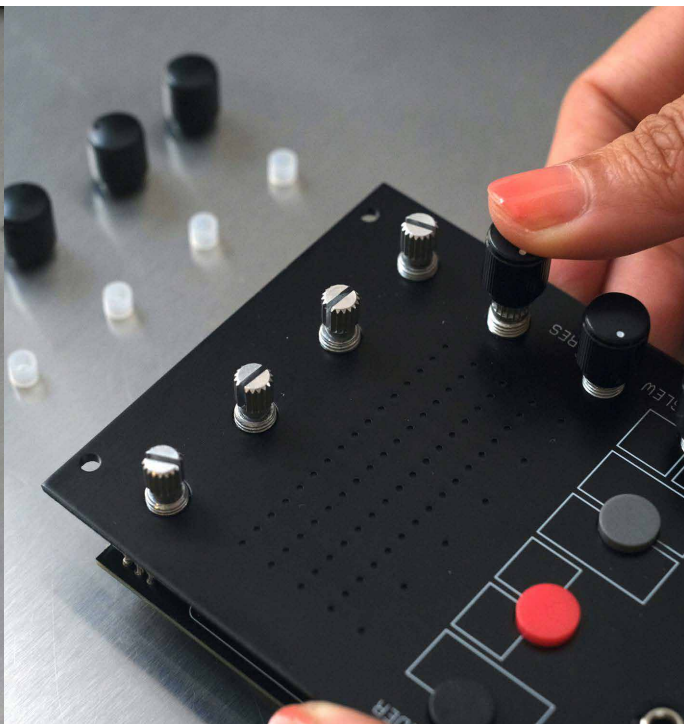
15. Make sure the thin washers are sandwiched neatly underneath the LED PCB. Solder the pins of the header to the LED PCB, making sure to keep the PCB level and flush.



16. Unpeel the backing of the white diffusion tape, and place neatly over the LED PCB, so it covers the PCB. Align the tape to the top RHS corner, using some sharp scissors cut off any excess tape from the LHS edge, making sure the tape still covers the Pin header and LEDs.



17. Place the panel carefully over the parts, make sure everything fits through the holes, and screw the panel to the PCB again with the 2 x M3 plastic screws



18. Turn the 3 rotary potentiometers fully anti-clockwise, then place the white dot knobs onto the shafts so that the dot is in the 7 o'clock position. Push knobs firmly onto the shafts. For the 4 un-marked knobs, place one of the short spacers [lengthwise] inside. Hold the module sideways, and push each knob onto the rotary encoder shafts making sure the spacers do not fall or turn sideways.



19. Finally screw on RYK ORIGINAL Black Jack nuts for all 8 Jacks.



20. Firmware and Calibration

Install the firmware for the module using the following procedure:

Connect the module to a Eurorack power supply with the 10pin IDC cable to the pin header marked POWER on the bottom corner of the module.

Take care to make sure the cable stripe is aligned with the arrow and 'Stripe' text on the PCB. Once connected power up the module, you will not see any flashing lights yet, as we need to install the calibration firmware.

Using the supplied USB cable, carefully connect the module to the micro end of the cable, and connect the other end directly to your computer [not via a USB Hub].

Once connected, on the module push and hold in the 'Firmware' button, whilst pressing once the 'Reset' button then release the 'Firmware' button.

You should see a USB Disc show up on your computer named "RPI-RP2", please copy or drag the "Night_Rider_V1.02_DIY_Kit.uf2" firmware file into the disk.

If successful, the disk will 'eject' automatically, and the module will restart with the firmware.

If all is well you should see an animation of horizontal lines on LED display.

If ok, the next step is to calibrate the ADCs in the module with the following procedure:

Place the module somewhere non-conductive with a long enough power cable to be able to turn the module over. Familiarise yourself with the 3way slide switch on the back of the module labelled 'N 0V 5V'. Whilst calibrating you will need to adjust this switch on the back, and also the 2 black trimmer potentiometers on the front of the panel.

Switch on the module whilst holding down the Black and Grey push buttons.

After the horizontal animation the LED display should light up all LEDs briefly.

Then the display will show '0V'

Set the slide switch on the back of the module to 0V, and set the 2 trimmers to full anticlockwise.

The display will count from 0 to 5.

Then the display will show '5V'

Set the slide switch on the back of the module to 5V, and set the 2 trimmers to full clockwise.

The display will count from 0 to 5.

Then the display will show '44'

Set the 2 trimmers to their centre stop position.

When the calibration is finished the display will fill up again lighting all LEDs.

Set the slide switch on the back of the module to the N position.

The module is now ready to use, please read [some of !] the manual for instructions and tips on how to use.

Have Fun !!

