

ErgoTravel Use Guide

GA. ver-0.1.1

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This keyboard is designed as a small “portable” split ergonomic board that you can take around with you.

Initial Setup

The keyboard should work out of the box as it has already been flashed with VIAL. You can use VIAL either in browser or as a desktop application. vial.rocks only works on chromium based browsers. The majority of information you need to work with VIAL can be found in their manual.

Extra Info

The firmware files and base layout can be found on my Github. If you need to flash the controllers with new firmware please look in section 5.

Design Info

The board design and more info on the board can be found on the creators ErgoTravel Github.

1 Warnings

INFO

The controllers will be permanently damaged if you hotplug the TRRS connectors. DO NOT DO THIS.

Make sure both TRRS connectors are securely plugged in before plugging in the USB.

The board is fragile, please treat it with care this is hand soldered and as such the joints may not be as strong as they appear.

There are two locations on the board where extra care should be taken, the **USB** header (see figure 1) and the **TRRS** connection jacks (see figure 2).

1.1 USB

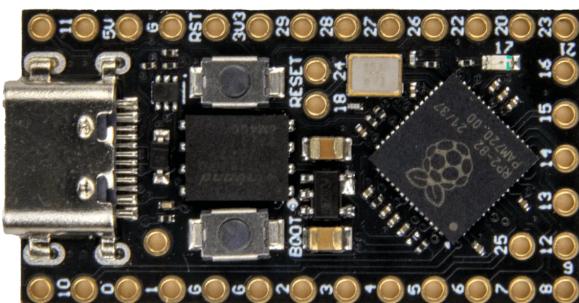


Figure 1: USB Header

These USB-C connectors have been known in the past to be slightly fragile and at risk of being ripped off if mishandled. This has supposedly been solved with the newer models, but please remain cautious of how you treat these.

1.2 TRRS

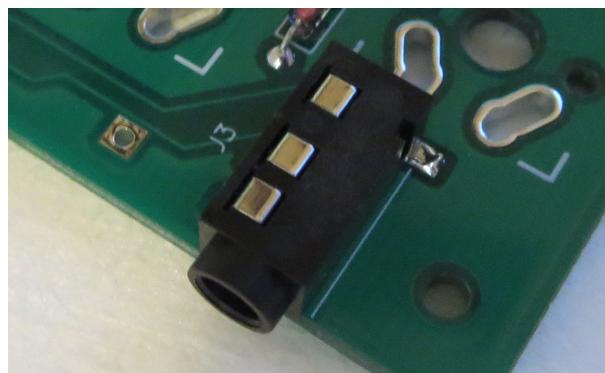


Figure 2: TRRS Connection jacks

The TRRS jack has been both soldered and glued to the board in an effort to stop it from breaking off when you plug or unplug the TRRS cable. Please take care doing this as I likely cannot repair this for you if it breaks.

2 Keymaps

The board has been flashed with a starting QWERTY keymap and four layers.

- Layer 0 split thumb cluster (figure 5)

- Layer 0 single thumb key (figure 6)
- Layer 1 single thumb key (figure 7)
- Layer 2 single thumb key (figure 8)
- Layer 0 single thumb key (figure 9)

Depending on the soldering two configurations are possible. Split thumb cluster or not (see figure 3) this can be toggled within the *layout* tab in VIAL. To activate the extra key in vial tick the available boxes as appropriate (see figure 4).

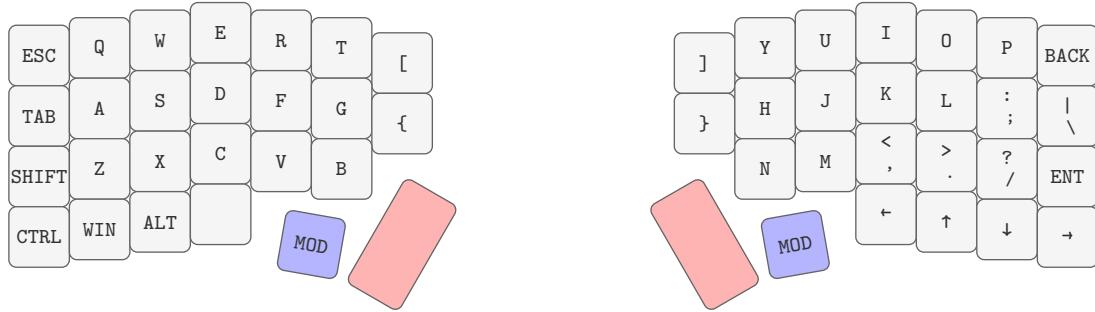


Figure 3: Split key layout option with single key thumb clusters.

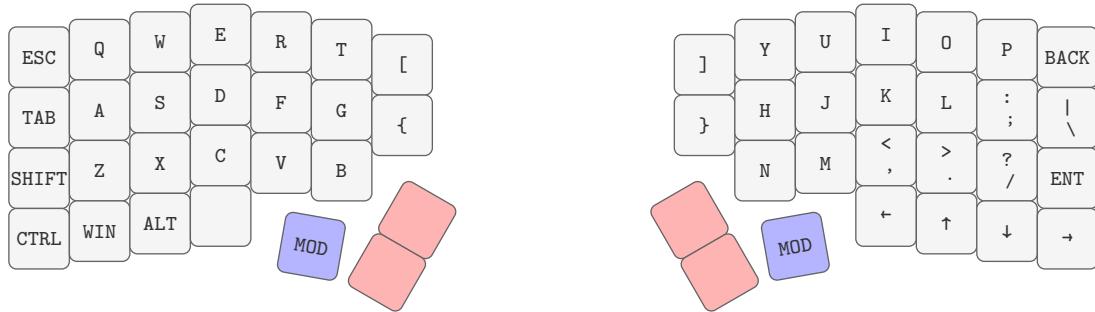


Figure 4: Split key layout option with double thumb clusters.

2.1 Layers

The board by default comes with 4 layers present, if you want more layers you will need to build your own firmware with a specific layer count flag. See section 5 if you need to do this, for most people 4 layers should be fine.

2.1.1 Layer 0 - Main Typing Layer

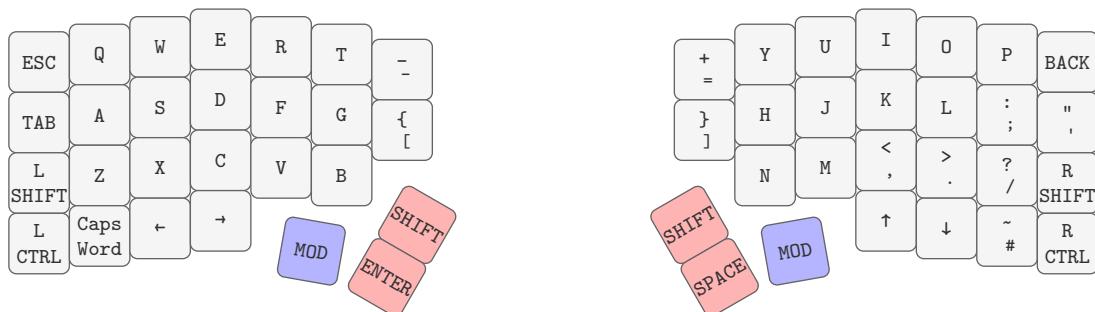


Figure 5: Split thumb cluster layer 0

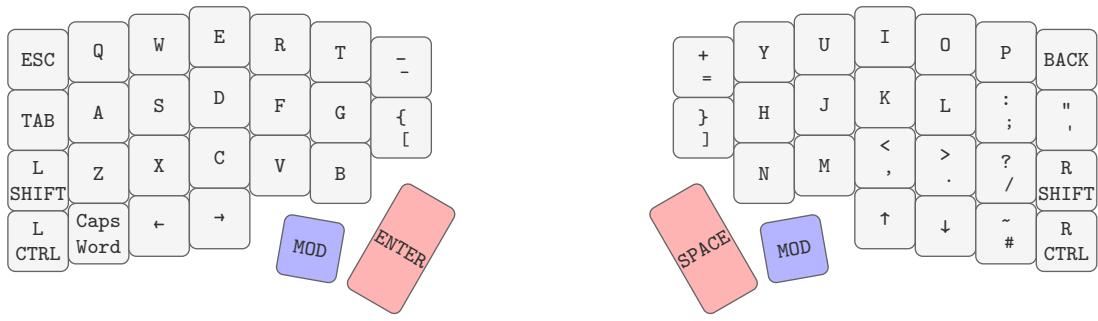


Figure 6: Single thumb key layout for layer 0

2.1.2 Layer 1 - Left hand symbols layer

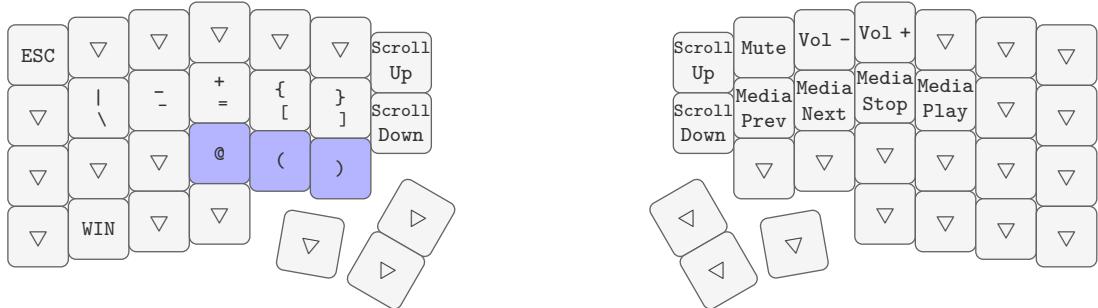


Figure 7: Double thumb key layout for layer 1

2.1.3 Layer 2 - Right hand number pad layer

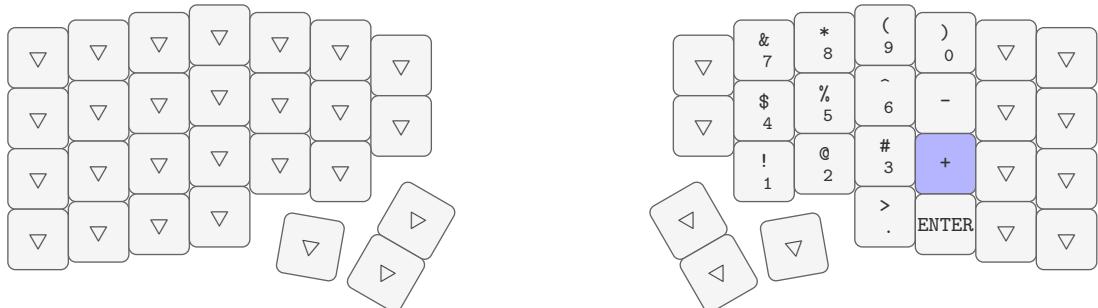


Figure 8: Layout for layer 2

2.1.4 Layer 3 - Spare layer

This layer is intentionally left blank as an exercise for the reader.

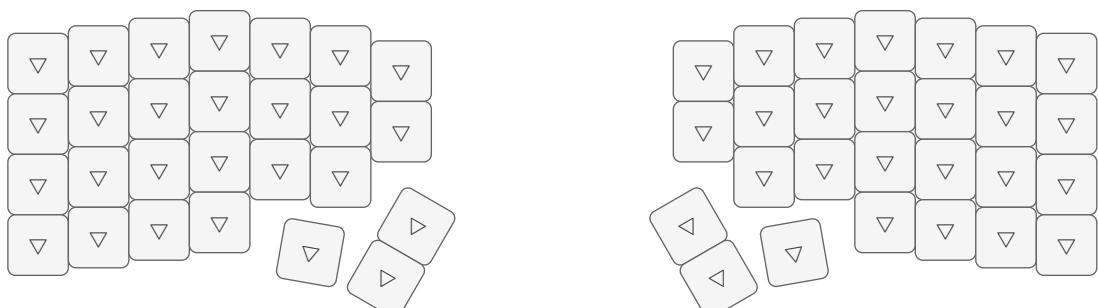


Figure 9: Layout for layer 3

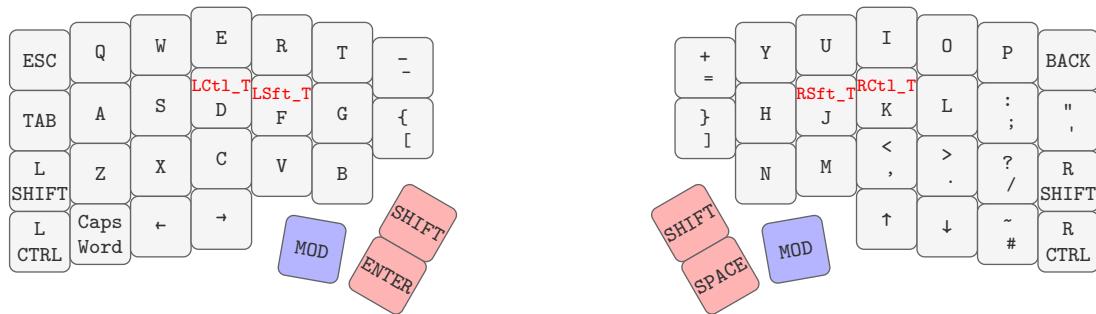
3 Useful and Ergonomic Features

This board while compact for travel purposes, it is still a larger ergonomic board by key count. With 60% and below boards it is important to use the layering effectively to reduce finger travel. Ideally for better ergonomics you want to minimise finger travel and stress, especially on weaker fingers such as the pinky finger.

3.1 Home Row Mods

As such it can be ideal to move certain modifier functionality to stronger fingers like the middle and index finger. Moving the modifiers such as *shift* and *control*, will reduce pinky strain while maintaining functionality.

You can do this by using the special *Tap* and *Key hold* quantum codes, *LSFT_T* and *LCTL_T*, and the applicable ones for the right.



There is a minor issue with doing this. The first is that this adds a set delay in key presses, this can disrupt the flow of typing. QMK and VIAL has some great features that help prevent this. *Permissive Hold*, *Chordal Hold*, and *Flow Tap*. These can be found in the *QMK Settings → Tap-Hold Settings*.

More info on each of these features can be found on the QMK wiki.

- Permissive Hold
- Chordal Hold
- Flow Tap

It is good to enable at least *Permissive Hold* and *Chordal Hold*. Once those are enabled it should feel fluid and smooth but play with the timings to match your typing speed. A high timeout is not a bad thing with these two settings enabled.

4 Control Board

The controllers are Pro-Micro RP2040 type. See pin out diagram in figure 10 for more information.

Use "-e CONVERT_T0=rp2040_ce" when compiling.
Top two pins (GP10 and GP11) should remain pin free for most common PCBs.
Confirm your orientation and flash before soldering!

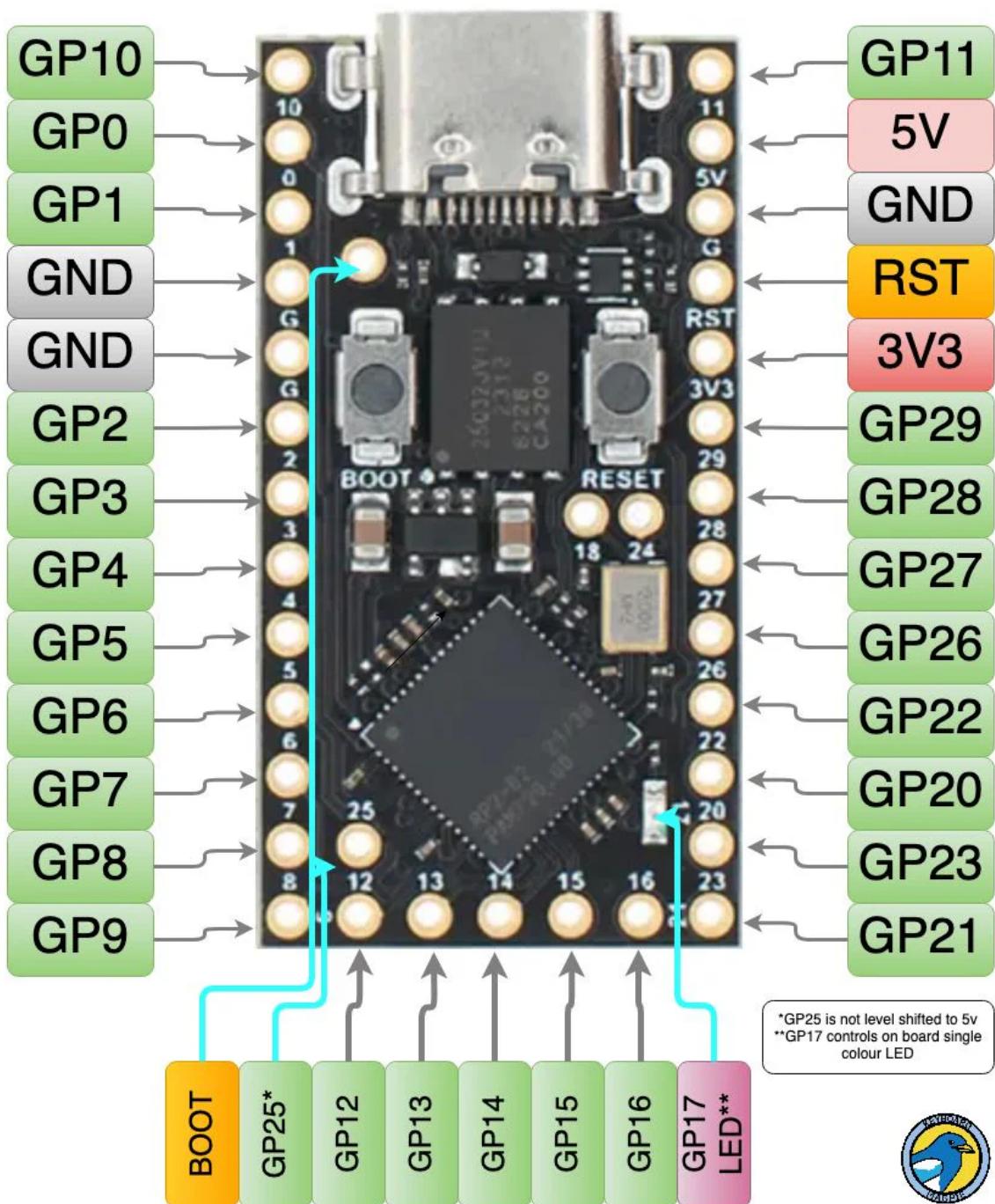


Figure 10: Single thumb key layer 0

5 Flashing new firmware

Pro-Micro RP2040 have a boot switch (see figure 11) on the frontside of the board and boot pins (see figure 12) on the backside.

- To enter flashing mode you need to hold down the button or connect the pins while plugging the controller in.
- Once it is in boot mode it should show up as **RPI-RP2** in your computer.
- You can drop compiled firmware files (*.uf2 format) on to the drive that has appeared, and the controller will flash itself and reboot.

INFO

The RP2040 is pretty safe to flash as it has a built-in bootloader you cannot overwrite.

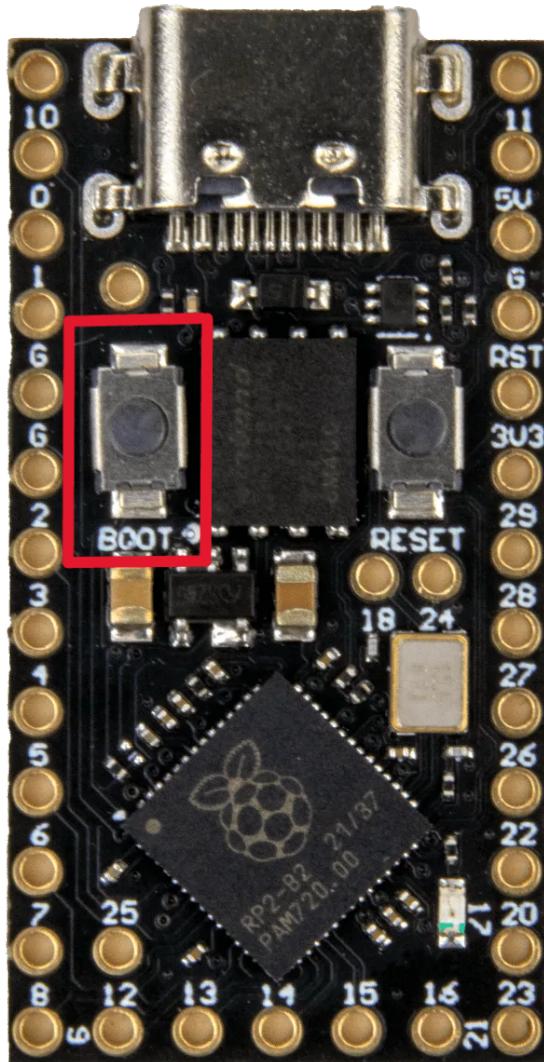


Figure 11: Boot switch on the front of the RP2040

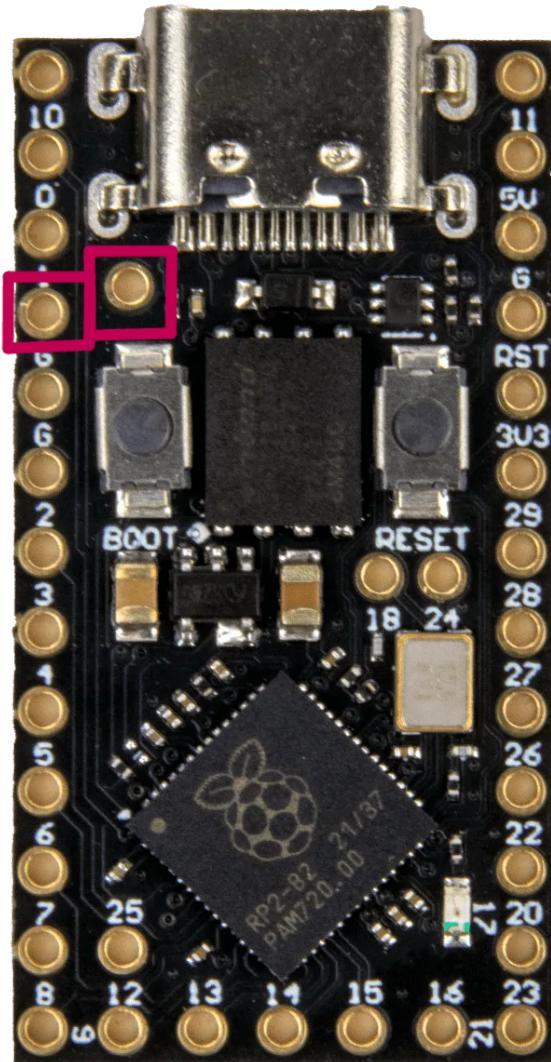


Figure 12: Boot pins on the backside of the RP2040

6 Removing the Control Board

The control boards on each side are socketed and therefore removable. Please do not remove these unless you have to.

If you do have to, carefully pry the board up slowly and gradually from multiple sides. Continue this till the board frees itself.

INFO

Removing or pulling the controllers out risks the following:

- Bending the controller legs
- Cracking the control board
- Breaking components on the board

Doing this could result in permanent damage to the controller.

7 Changelog

0.1.1

- Changed the keyboard diagrams to use my new keyboard layout visualisation package (unpublished).
- Added mention for home row mods.
- Fixed captions for layouts.