**Some notes:**

Phendrana is a keyboard that attempts to follow the ZMK design language. This introduces a few unique features to the board, that may be odd the first time used.

These are:

* Power, there is no outside power switch for Phendrana, it relies on sleep modes to save power
  + Internally there is a power switch, however it was designed as more of a power switch for long transport
* Phendrana has two sleep modes:
  + Idle – LEDs turn off, keyboard is still connected (~30s after you’ve stopped typing)
  + Sleep – Keyboard disconnects from devices to save power from Bluetooth (~15m after you’ve stopped typing)
  + These timings can be changed in the .conf files (for left and right), using these parameters: <https://zmk.dev/docs/config/power#idlesleep>
* Phendrana can be used either through USB, or Bluetooth, if connected to a PC using USB, it will always send keystrokes to the PC through USB
  + You should still be able to charge while using Bluetooth, you just would need to use an AC adapter to do so
  + It should be noted that Phendrana won’t work with USB C-C cables

**Key Combinations:**

* CAPS Lock (Labeled “Del” due to key sizes) and Function
  + Modshifts, if tapped, CAPS acts as CAPS Lock, Fn acts as Right Windows
* Layer 1:
  + F1-F6 change Bluetooth input (use this to connect multiple PCs)
  + Windows removes (“forgets”) Bluetooth pairing – remove from client side when you do this
  + Volume Down changes to mute
  + Left/Right arrow change to Previous/Skip music
  + ESC turns off LEDs
  + Tilde increases LED Brightness
  + Tab decreases LED Brightness
* Other layers are not currently implemented, however could be added

**Power LEDs:**

The Power LEDs functionality are as follows:

* Green (Top): Power Good, if power is connected, this LED is on
* Red (middle):
  + If battery is connected, LED is on for charging, off when charge is complete
  + If battery is disconnected, this LED is high impedance (it will flicker at a lower brightness)
* Red (bottom):
  + If battery is connected, LED is on when charge is complete (off when charging)
  + If battery is disconnected, the LED is on

**Assembly**:

The new Phendrana revision has been designed so that it requires minimal disassembly to assemble.

Note: the antennas are attached to the bottom case, if removing PCB from case, be careful of antennas  
  
To assemble Phendrana, you need to:

1. Unscrew top plate
   1. There should be 5 screws on the left, and 6 on the right
2. Attach stabilizers to Plate
3. Attach some switches to the plate, and from the plate into the PCB
   1. It is recommended to attach around the stabilizers, to keep them in place
4. Screw the Plate back into the bottom case
   1. The screws shouldn’t need to be very tight, however make sure the screws around the stabilizers are looser, otherwise the stabilizers may bind when typing
5. Attach all other switches to the PCB/Plate
6. Unscrew back battery cutout
7. Place in battery
   1. Note: The battery should only go in one way, the Leftmost pin is V+, and rightmost is V-
   2. Battery should be at least 1000mAh, it is designed to charge at 1000mA, any smaller battery may be damaged if used
8. Attach Keycaps to switches

**Troubleshooting**

Stabilizers Bind:

* Check that Stabilizers are installed evenly
* Check if there is a screw beside the stabilizer, if so, loosen screw

Bluetooth not connecting:

* Reset Master (Left) PCB (Reset switch, ESC+CAPS+CTRL, or remove battery)

Right side isn’t connecting:

* Remove batteries from both sides, and install batteries close to the same time
* If problem persists, use “Settings\_reset.uf2” on both sides, then upload PhendranaL.uf2 and PhendranaR.uf2 to the respective sides

One side starts blinking lights

* Battery is on the edge of dying, and needs to be charged (happens due to the battery protection IC)