



Glove80 User Guide

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The story behind Glove80

Thank you for choosing Glove80. Glove80 is not your usual keyboard. It was designed by a bunch of keyboard warriors for themselves.

We were a small group of I.T. professionals who had various kinds of RSI. Without a good ergonomic keyboard our careers and quality of life would seriously suffer.

We wanted and *needed* the most comfortable keyboard.

But nothing available was good enough. Some of us were using Kinesis Advantages. Our co-designer Chris even made an open-source controller and firmware to improve Kinesis Advantage.

But we knew we could make a much better keyboard that would be more comfortable for more of us.

And so we did! In 2014/2015. We had no idea how difficult it would be. Hundreds of variations and experiments later¹, we had finally made *the* keyboard we were happy with.

We used this keyboard as our daily drivers. For 5 years. We had made it for ourselves and nobody outside our little group knew about it.

Then in 2021, Stephen, the other co-designer, had a rare opportunity to do something different. Our friends had been asking us to share this invention with others who need a seriously comfortable keyboard. Stephen took up this challenge and re-designed Glove80 for mass-manufacturing. Same ergonomics, but significantly more refined.

Glove80 is a work of love. We hope you will love it too. *Thank you for believing in Glove80.*

¹ <https://www.linkedin.com/pulse/repetitive-strain-injury-rsi-how-ultimate-ergonomic-keyboard-created>

What's in the box?

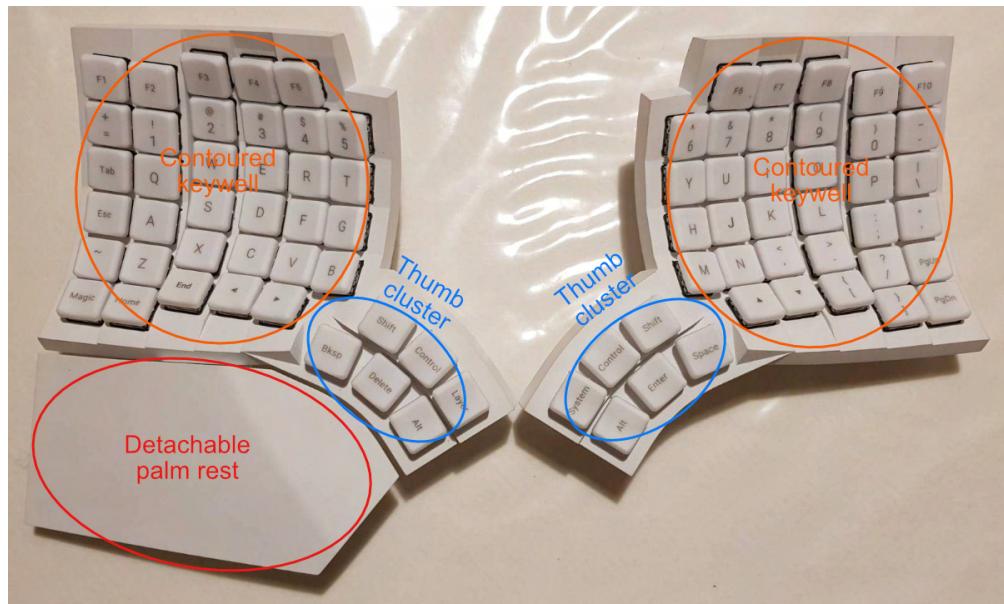
<Photo of the box>

- Glove80 keyboard (a pair of 2 halves)
- A USB-A to USB-C cable
- A set of extra M4 threaded rods for high angle tenting
- 12 extra feet for high angle tenting and custom mounting
- 12 extra silicone pad for high angle tenting and custom mounting
- 12 half height M4 nuts for tenting
- An M4 wrench
- A keycap puller

A look at Glove80

Glove80 is a split keyboard, consisting of a left half and a right half.

The left half is called the Central, and acts as the “brain” of Glove80. When connected to a host like a PC or a phone with a USB cable, the USB cable must be plugged into the left half. When Glove80 is connected to the host via Bluetooth Low Energy (BT Low Energy or BLE), the left half is the half that is talking to the host wirelessly.



Contoured keywell: Keys to type with your four fingers on each hand

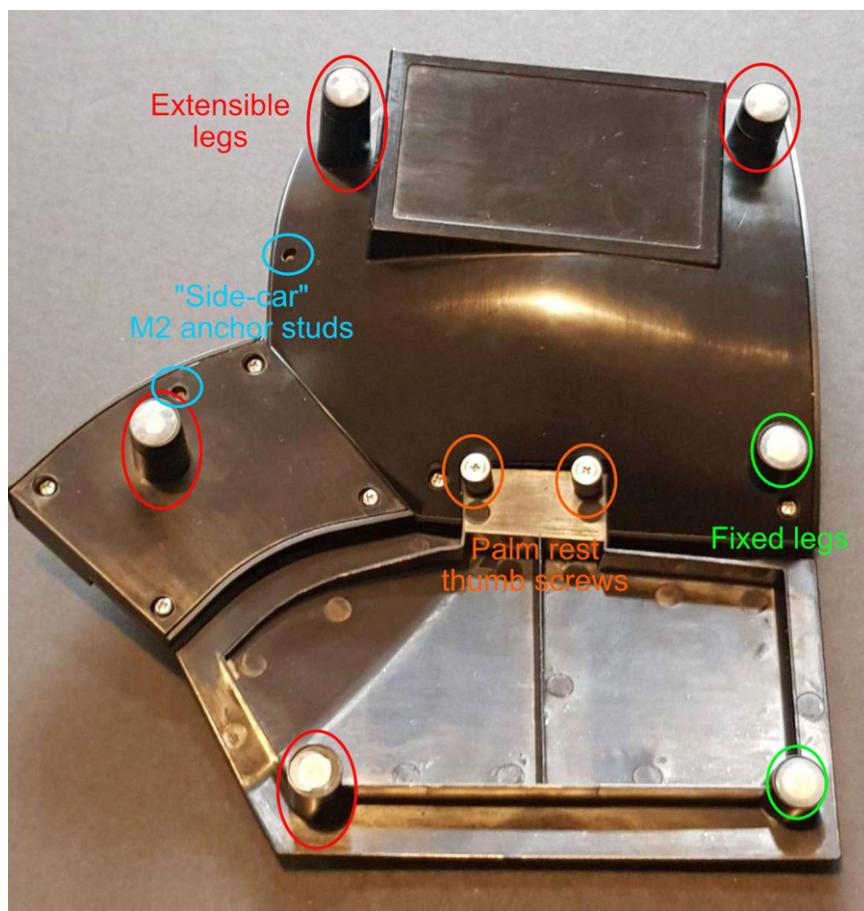
Thumb cluster: Keys to type with your thumbs

Detachable palm rest: Optional palm rest



Power switch: For switching off power. Please note that it is still possible to charge the battery even when powered off.

USB port: For connecting to host (left half only), updating firmware, and battery charging



Fixed legs: Legs that are not height adjustable

Extensible legs: Legs that are height adjustable

Side-car anchor studs: two M2 studs for attaching a "side-car" add-on

Palm rest thumb screws: For attaching the palm rest to the keyboard

Quick test drive with Glove80

Procedure:

1. Plug in the USB cable to the left half of your Glove80
2. Plug in the other side of the USB cable to a host, such as a PC
3. Switch on both the left and right halves by pushing in the power button on each side
4. Start typing

If all goes well you should see the keystrokes showing on the PC.

Your Glove80 is shipped with its battery partially charged. However, we recommend fully charging both halves before using Glove80.

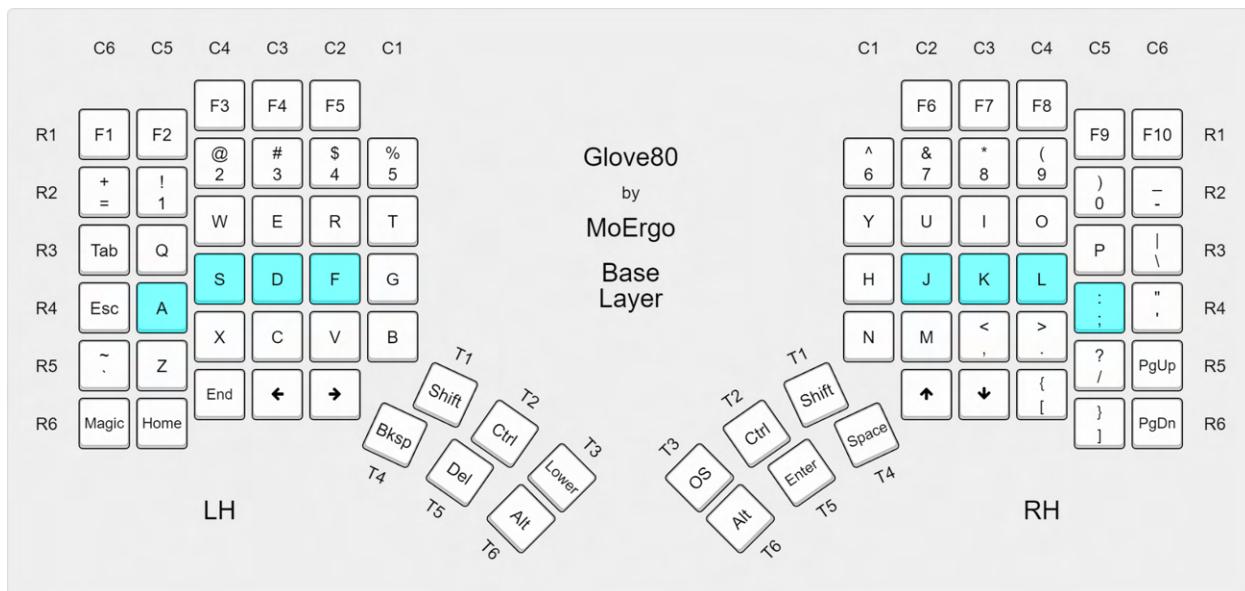
Typing with Glove80

Setting up Glove80 for comfortable typing

Glove80 has been designed to encourage good typing postures. For an overview of Glove80's ergonomic design features and the rationale behind Glove80, please read *The Ergonomic Design of Glove80 Split Contoured Keyboard*²

Here is a quick instruction:

1. Make sure you have a properly set up and comfortable desk and chair, or alternatively a standing desk.
2. Attach the palm rest to each half of your Glove80.
Note: you can type on your Glove80 without the palm rests. However for maximum comfort, we recommend attaching the palm rests.
3. Place the two halves in a comfortable position, such that:
 - The two halves are separated at a distance suitable for your shoulder width;
 - Your wrists are straight when viewed from above, i.e no ulnar deviation;
 - Your forearms are horizontal or slightly pointing downwards when you place your palms on the palm rests. If necessary, please re-adjust your desk and chair.
<some pictures/illustrations of the 3 bullet-points above would be useful>
4. Place your fingers on the highlighted keys in the image below. This is the typical rest position for your fingers, also known as the "home row".



² <https://www.linkedin.com/pulse/ergonomic-design-glove80-split-contoured-keyboard-moergo>.

5. Glove80 is a columnar keyboard: it is designed to reduce the need for fingers stretching sideways. Most of our finger movements are to curl and uncurl. The index and the pinky fingers are each responsible for two columns, while the middle and ring fingers are each responsible for one column. Adjust the position of your palm (and if necessary the two halves of the keyboard) until you feel comfortable reaching the finger keys.
6. Glove80's thumb cluster is unique. It is designed to require no or very little palm movement to reach all 6 thumb keys. Try pivoting your thumb from the base joint of your thumb to reach each of the thumb keys.

That's it! Here is a video of one of our testers typing:

<https://www.youtube.com/watch?v=68v-AztMob8>

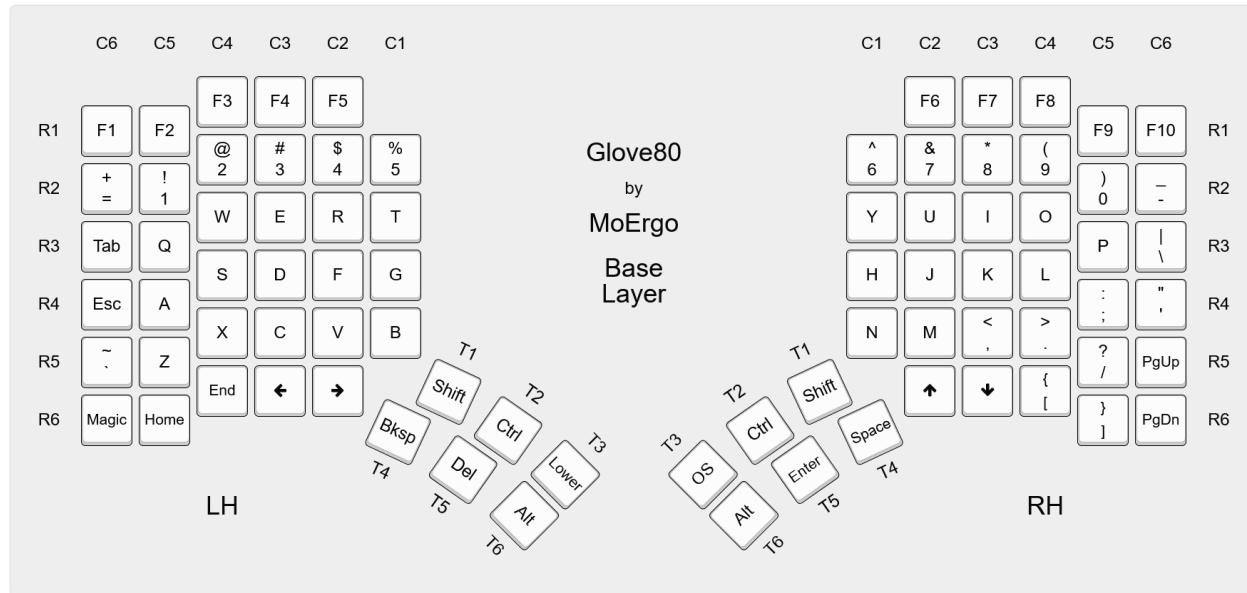
If you are already familiar with typing on a columnar keyboard such as an Ergodox, you should very quickly adapt to your Glove80. If you have never typed on a columnar keyboard, there will be a learning curve to adapt to the columnar finger movement. Most people find themselves picking up the basics within a day, but mastery will take at least a few weeks of practice.

Default key layout

Glove80 supports the concept of multiple layers. When you power on the keyboard, the Base Layer will be in effect. However you can switch to different layers) in which the same key will have different meanings. This isn't as confusing as it may sound: you do the same when you use the Fn key on a laptop. There are two ways of switching layers: You can switch to another layer momentarily (for as long as you hold down a trigger key, à la "Fn") or indefinitely until you switch layer again.

When shipped, Glove80's default key layout has 3 Layers: Base Layer, Lower Layer and the Magic Layer.

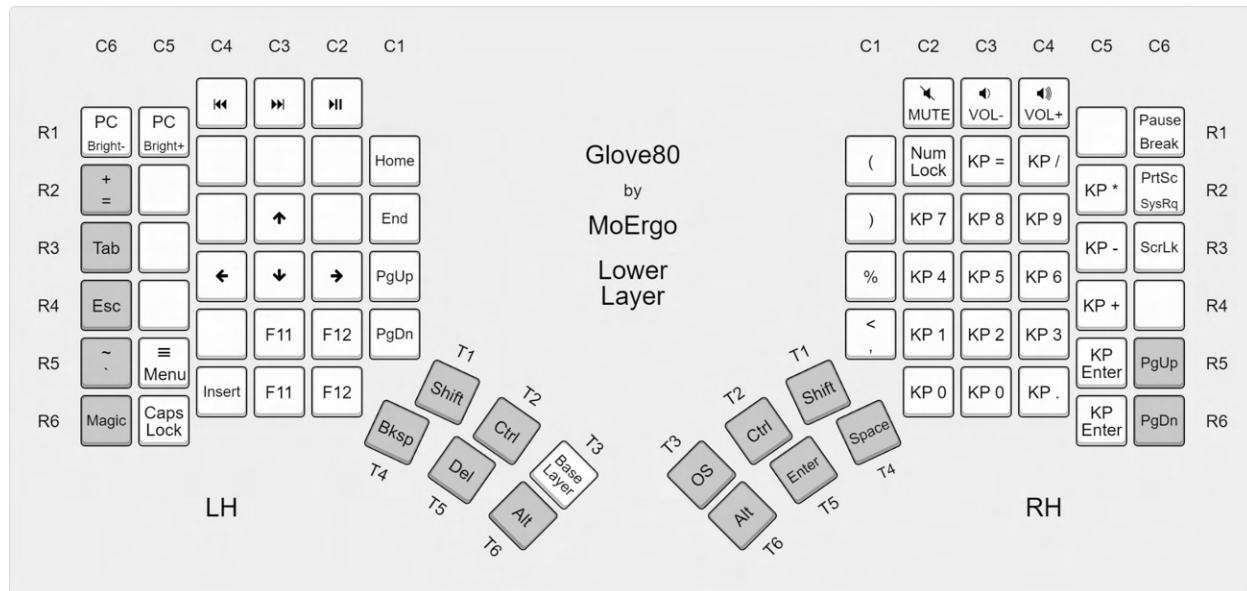
Here is the Base Layer:



Please note that legends in the illustration above, R1...R6, C1..C6, and T1..T6, define the convention for key positions on Glove80. For example in the default layout Base Layer, LH C2R3 is “R”, and RH T1 is the “Shift” key on the right hand.

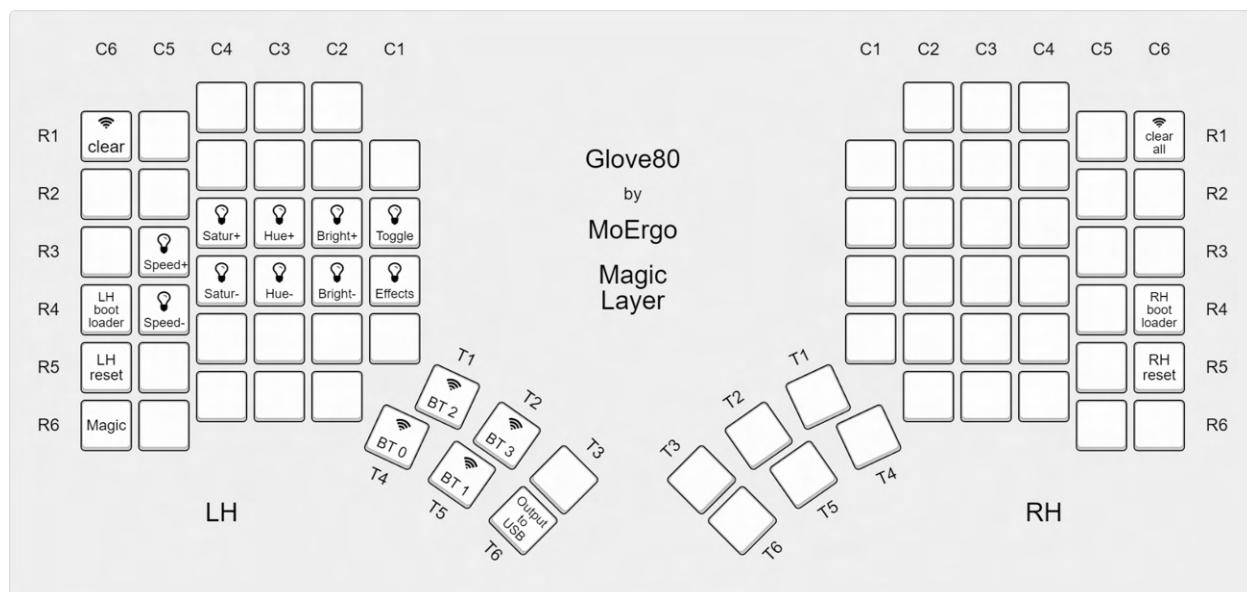
If you press and hold the Layer key, Glove80 will momentarily change to the Lower Layer. As long as you continue to hold down the Layer key, the other keys will have the functions shown in “Lower Layer” below.

If you double-tap the Layer key, Glove80 will persistently change to the Lower Layer: without further holding down the Layer key, the other keys will continue to have the functions shown in “Lower Layer” below. Pressing the Layer key again will return to the Base Layer. This is useful for the numeric keypad and arrow cluster.



Single tap the Magic key, and the RGB LED [indicators](#) will show the status of caps lock, scroll lock & num lock, charge level of both batteries, status of BT Profiles and which layers are in effect.

The Magic Layer is activated momentarily by holding the Magic key. While the Magic key is held, the other keys will have the functions described in the “Magic Layer” below. The Magic Layer is the layer for controlling Glove80 itself.



As you become familiar with Glove80, you may want to [customize Glove80's key layout](#) to match your typing habits.

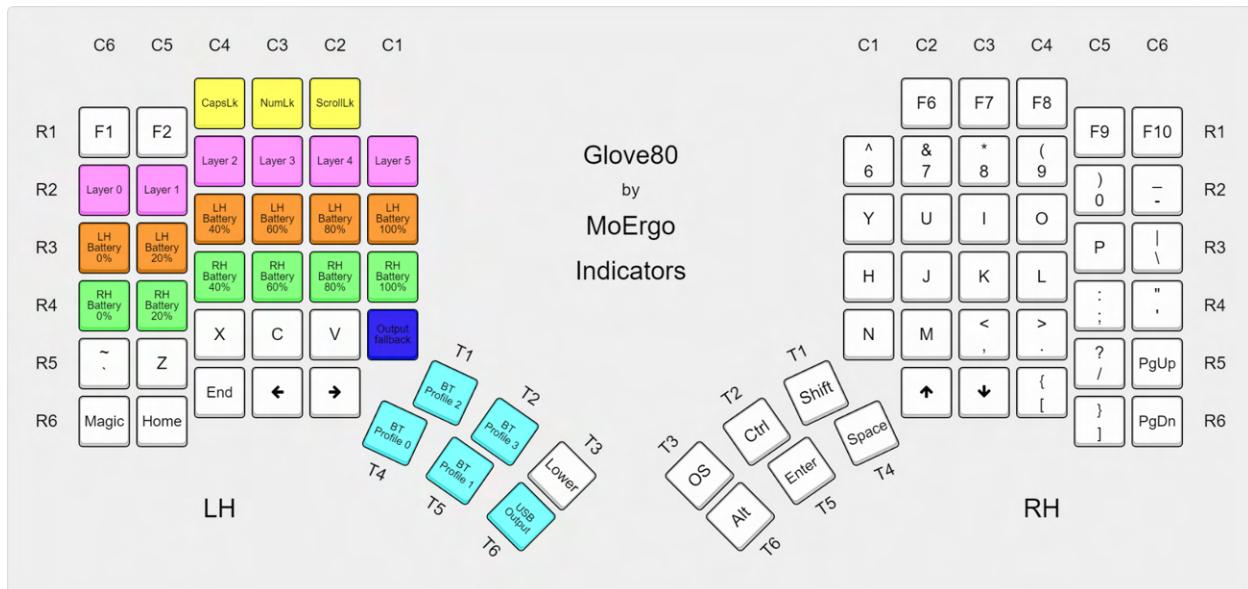
Indicators

<This feature is under development. It is currently not available>

When you tap on the Magic key, you will activate the indicators for 10 seconds. The left hand RGB LEDs will light up to indicate the status of the Glove80, showing:

- Caps lock, scroll lock, and num lock status
- The battery level and status of both left and right halves
- The status of each BT Profiles
- Which key layout layer is currently active

Here is a diagram showing the meaning and position of the indicator RGB LEDs:



Caps-lock, num-lock & scroll-lock

If the respective indicator is red, the lock is enabled.

Key layout layer status

If the respective indicator is purple, the layer is active

Layer 0 is the Base Layer of the key layout.

For the default key layout, Layer 1 is the Lower Layer.

For the default key layout, Layer 2 is the Magic Layer.

If you are using a customized key layout, the meaning of Layer 1 to Layer 5 will depend on your definition. If your customized key layout has more than 6 layers, the status of Layer 6 or above won't be shown.

Battery indicators

For more details of battery indicators, please refer to the [Battery indicators](#) section.

BT and USB indicators

Each BT Profile is represented by a RGB indicator.

The meaning of the colors for a BT Profile Indicator is:

- Red: The BT Profile is current not paired
- Yellow: The BT Profile is paired but the device is currently not connected
- Green: The BT Profile is paired and the device is currently connected.

The meaning of the colors for the USB Indicator is:

- Red: The USB device is currently disconnected
- Green: The USB device is currently connected

One of the BT Indicator and USB Indicator is extra bright. The extra brightness indicates this particular device is the *actual* output device to which the key codes will be sent.

Please note that due to behavior of ZMK, the *actual* output device may not be the same as the *selected* output device. ZMK's output fallback mechanism is explained further in the section [ZMK output fallback mechanism](#). If the output fallback mechanism is in operation, i.e. *actual* output device is not the same as the *selected* output device, the Output Fallback indicator will be in red.

Operating Glove80 wirelessly

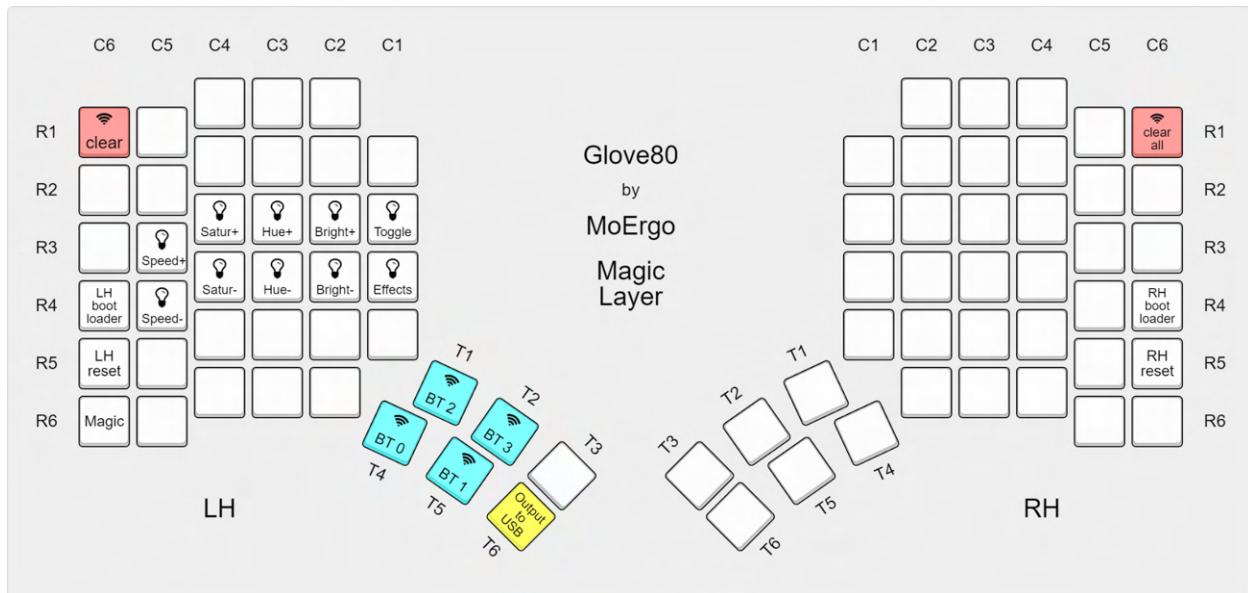
Introduction

Glove80 is capable of wirelessly connecting to your computer, your phone or other devices through Bluetooth Low Energy (BT Low Energy or BLE). Your devices need to support Bluetooth 4.2 or above.

Glove80 supports up to 4 simultaneous BLE devices being paired. Conceptually speaking, Glove80 has 4 BT Profiles, numbered BT Profile 0 to BT Profile 3.

Each BT Profile can be paired with a different BLE device. If you try to pair with the same BLE device using two BT Profiles, pairing will fail and may cause strange behavior.

Selecting BT Profile and USB-connected device



On a default key layout, you can select a BT Profile by pressing the Magic Key and the corresponding key highlighted in blue above.

Once paired and connected, you can quickly switch between BLE devices and the USB-connected device by selecting the corresponding BT profile or selecting Output to USB.

For example you may pair with a MacBook on BT Profile 0, and an Android phone on BT Profile 1. If you want to type on the MacBook, you can switch to BT Profile 0 by, on the default key layout, pressing Magic + BkSp. If you then want to switch to the Android phone, you can switch

to BT Profile 1 by, on a default key layout, pressing **Magic + Del**. If you want to switch to the USB-connected device, on a default key layout, you can do so by pressing **Magic + left-Alt**

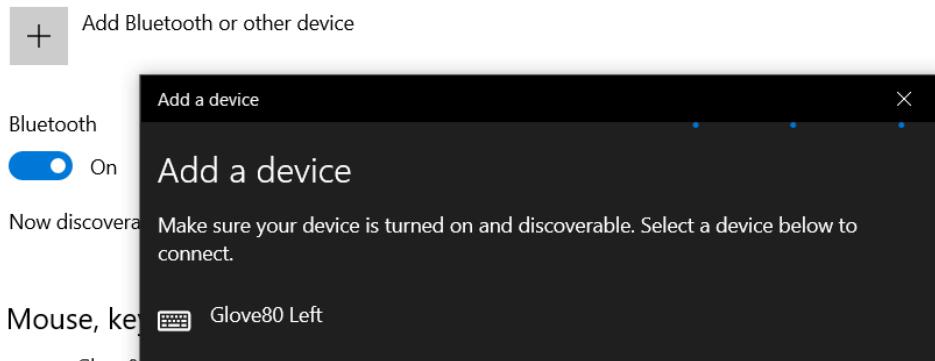
Pairing with a BLE device

NOTE: Before you pair with a BLE host, if you had previously paired the Glove80 with the said BLE host, you must first remove the pairing from both the BLE host and Glove80. Otherwise the pairing attempt will fail, or will cause strange problems. Please see the section on [Unpairing a BLE device](#).

Pairing procedure:

1. Power on Glove80
2. Select a BT Profile on Glove80 that is currently not paired with a BLE device.
3. Press the Magic key, the selected BT Profile should be indicated in red, confirming that it is not already in use. See the section on [BT and USB indicators](#) for further details.
4. On the BLE device you intend to pair with, use the procedure appropriate for your operating system to pair with the “Glove80 Left” device.
 - a. On a Windows 10 computer,
 - i. Go to Settings -> Bluetooth and other devices
 - ii. Make sure that Bluetooth is enabled
 - iii. Click on the “Add Bluetooth or other device” button
 - iv. Choose the “Glove80 Left” device to pair with

NOTE: If the “Glove80 Left” device is not listed on the BLE device you intend to pair with, it is possible it was previously paired with Glove80. Therefore the pairing needs to be removed from the BLE device.



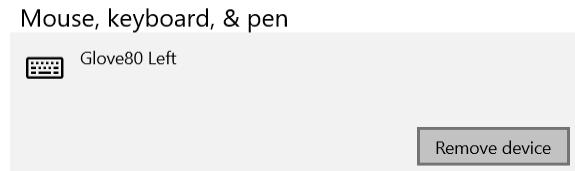
NOTE: If pairing fails or if there are strange problems, there are a number of possible explanations:

1. Does the BLE device support BT version 4.2 or later? If not, the BLE device may not be compatible with Glove80.
2. Did you previously pair Glove80 with this device? If so, you might have accidentally left a stray pairing on Glove80, Please see the section on [Unpairing all BLE devices](#).

Unpairing a BLE device

Procedure:

1. Power on Glove80
2. On Glove80, select the BT Profile that was previously used to pair with the BLE device. If you don't know which BT Profile was used, you will have to [Unpair all BLE devices](#).
3. Press the key(s) to clear the bluetooth pairing. On the factory default key layout, the keys are Magic + F1.
4. On the BLE device that was previously paired, use the procedure appropriate to the operating system to remove the pairing, e.g.:
 - a. On a Windows 10 computer,
 - i. Go to Settings -> Bluetooth and other devices
 - ii. Select the paired Glove80 Left device
 - iii. Click on the “Remove Device” button



Unpairing all BLE devices

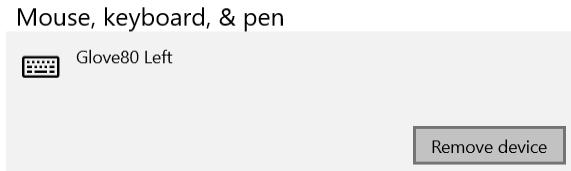
CAUTION: This procedure will remove pairing with **all** paired BLE devices on the Glove80. Please use this procedure with care.

NOTE: You can also use this procedure when you have difficulties pairing with a device that you may have previously paired with, or attempted to pair with.

Procedure:

1. Power on Glove80

2. Press the key(s) to clear all bluetooth pairings for all 5 BT Profiles. On the factory default key layout, the keys are Magic + F10.
3. On all BLE devices that were previously paired, use the procedure appropriate to the operating system to remove the pairing, e.g.:
 - a. On a Windows 10 computer,
 - i. Go to Settings -> Bluetooth and other devices
 - ii. Select the paired “Glove80 Left” device
 - iii. Click on the “Remove Device” button



ZMK output fallback mechanism

If Glove80 is simultaneously connected to both a USB device and an active BLE device on a selected BT Profile, and the currently selected output is disconnected, Glove80 will automatically fall back to output to the other connection method.

For example, if Glove80 was set to output to USB and the USB device is disconnected, the Glove80 firmware (ZMK) will automatically fall back to output to the last selected BT Profile. Conversely, if Glove80 was set to output to a BT Profile, and the BLE device disconnected, the Glove80 firmware (ZMK) will automatically fall back to output to USB.

This is a ZMK behavior meant to simplify switching between devices.

In the case of automatic output fallback, if the removed connection is restored, Glove80 will return to output to the originally selected connection method.

As described in the section [BT and USB indicators](#), when indicators are active, Glove80 will always highlight the current actual output, even in the case that it was activated by automatic output fallback. If output fallback is currently active, Glove80 will display this with a red light on LH C1R5.

For more information on this output fallback behavior, please refer to the ZMK documentation <https://zmk.dev/docs/behaviors/outputs>.

Battery-powered operation

Glove80 can be USB-powered or battery-powered. Each half of Glove80 has a separate lithium-polymer battery.

Charging

To charge one half of Glove80, simply plug the half into a PC or USB charger with a USB-C cable.

You can continue to use Glove80 while charging.

Battery indicators

<This feature is being developed, and is currently unavailable>

<To be written>

Battery saving with RGB Underglow

<This feature is under development, and is currently unavailable>

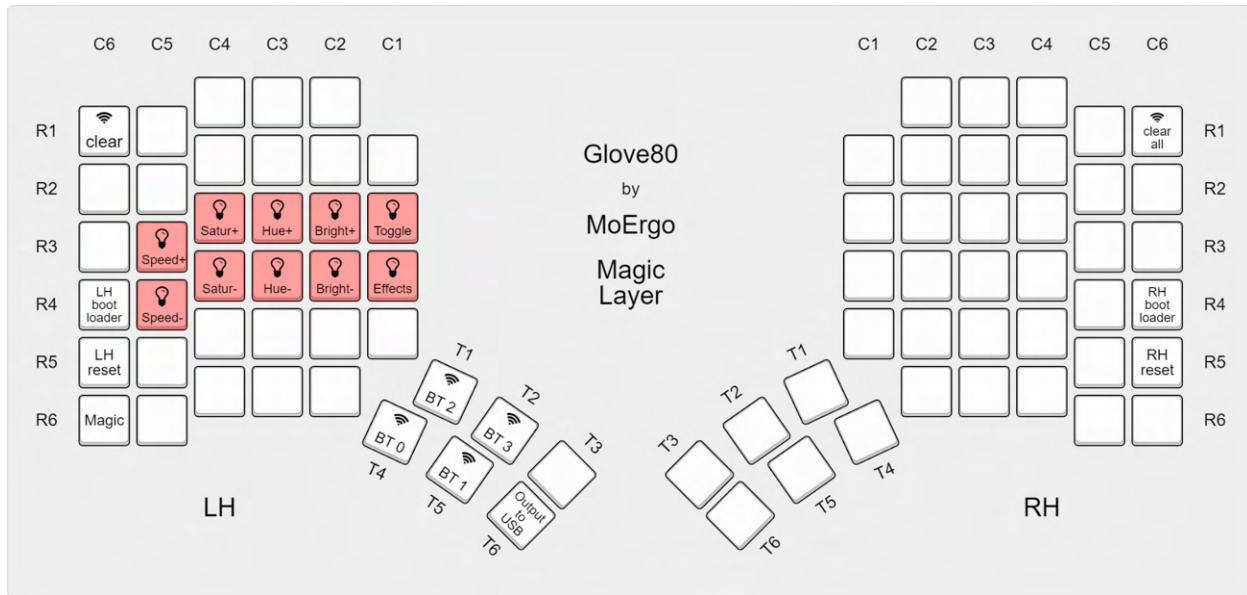
RGB LEDs consume a lot of power, depending on their brightness. To extend the battery life, Glove80 implements an automatic mechanism for the RGB underglow feature:

- When the battery level is below 40%, Glove80 will automatically limit the maximum brightness of RGB Underglow.
- When the battery level is below 20%, Glove80 will automatically disable the RGB Underglow feature. However the [Indicators](#) function will continue to operate.

Configuring the RGB underglow

Depending on the configuration of your Glove80, it has either RGB LEDs under all keys on both halves ("Gaming" edition), or RGB LEDs under the keys on the left half ("Standard" edition).

The RGB underglow displays beautiful patterns on your Glove80. On a default key layout, the RGB underglow function is controlled by the keys highlighted in the diagram below in the Magic Layer.



- Toggle: Turns on and off the RGB Underglow function
- Effects: Switch to the next underglow effect
- Bright+/Bright-: Controls the brightness
- Hue+/Hue-: Controls the hue
- Satur+/Satur-: Controls the saturation
- Speed+/Speed-: Controls the speed of the effect

Battery saving

When the battery runs low, RGB Underglow will be dimmed or switched off completely to extend battery life. For more details please see the [Battery saving with RGB Underglow](#) section.

Customizing key layout and swapping keycaps

Customizing key layout

Each of us has a different hand size and shape, typing habits, and different application needs. Glove80 and its open-source ZMK-based firmware make it easy for you to customize your Glove80 to have exactly the key layout you want.

There are a few ways to change the key layout. The easiest way is to use the [UI Configurator](#). An alternative is to edit the keymap file and compile your own ZMK firmware. For more information on this, please see [Appendix: ZMK](#).

After you have built a new ZMK firmware with the new key layout using either approach, you will have to load the firmware onto Glove80. To do this, follow the instructions in the [Loading the new ZMK firmware onto your Glove80](#) section.

UI Configurator

<This section is to be written - it is currently incomplete>

Nick Coutsos' excellent [open-source ZMK Keymap Editor](#) has been customized for Glove80.

Loading the new ZMK firmware onto your Glove80

The UI Configurator will generate a .uf2 file which is the new firmware containing the new key layout. We have to load this new firmware onto *both halves* of your Glove80.

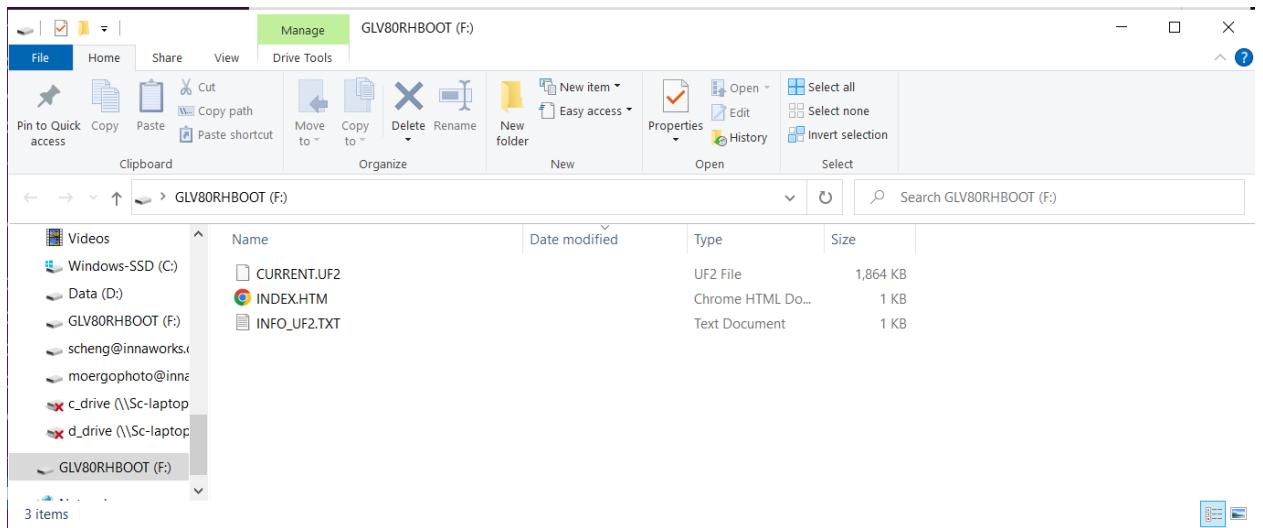
To do this safely, please prepare:

- A spare keyboard or on-screen keyboard
- The USB-A to USB-C cable

The steps to load the new firmware is:

1. First plug in the USB-A to USB-C cable to the **left** half of your Glove80.
2. Put the left half into bootloader mode. On the default key layout, this is done by pressing the keys **Magic + Esc**. If you have changed this in your layout, please see the section on [Putting Glove80 into Bootloader for Firmware Loading](#).

3. If successful, the bootloader will present a USB Mass Storage Device. As an example, on Windows you will see a File Explorer window with the name GLV80LHB00T

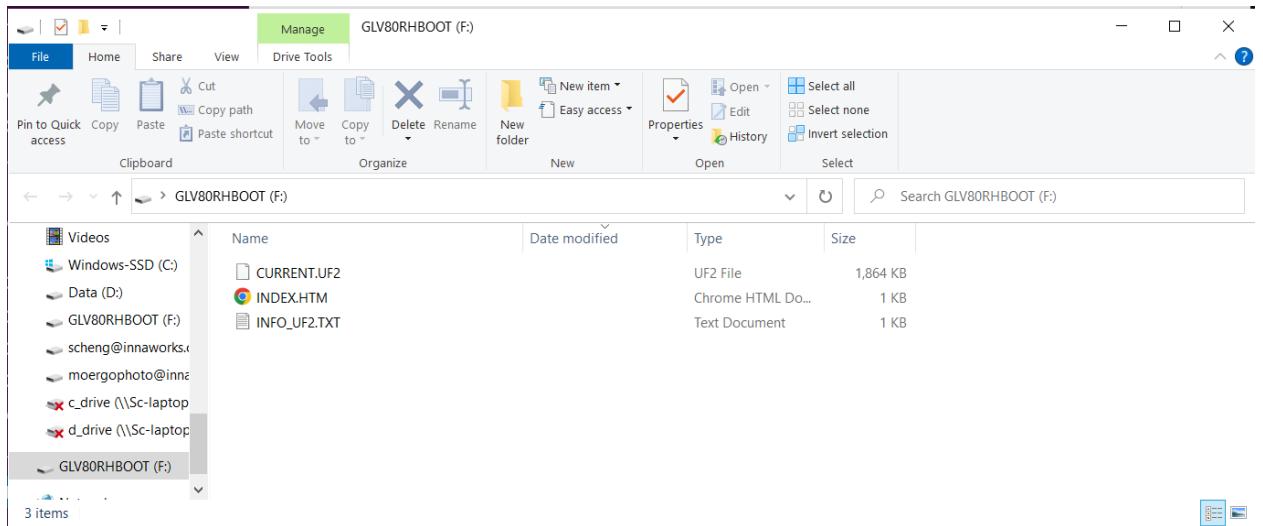


4. Copy the .UF2 file into this Mass Storage Device. If successful the Mass Storage Device will disappear.

5. Next plug in the USB-A to USB-C cable to the **right** half of your Glove80.

6. Put the right half into bootloader mode. On the default key layout, this is done by pressing the keys **Magic + ‘.** If you have changed this in your layout, please see the section on [Putting Glove80 into Bootloader for Firmware Loading](#).

7. If successful, the bootloader will present a USB Mass Storage Device. As an example, on Windows you will see a File Explorer window with the name GLV80RHB00T



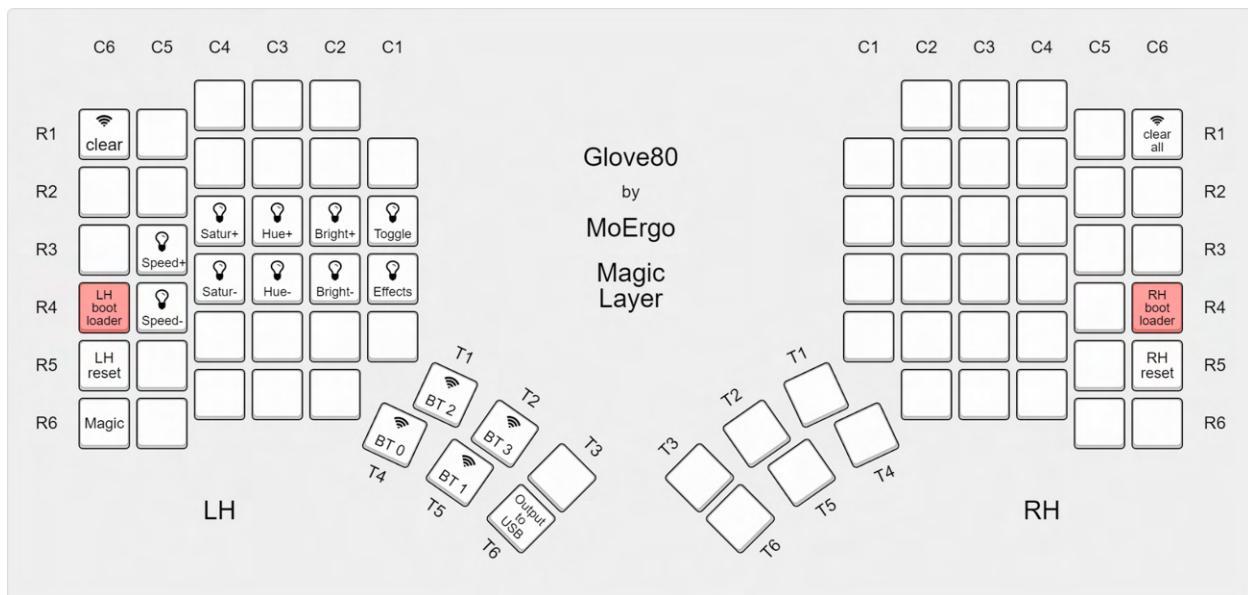
8. Copy the .UF2 file onto this Mass Storage Device. If successful the Mass Storage Device will disappear.

Putting Glove80 into Bootloader for firmware loading

The bootloader is the piece of software that runs immediately after you turn on a Glove80 half. Normally it will simply pass the control over to the ZMK firmware. However it also has the ability to load new ZMK firmware by presenting a USB mass storage device.

There are two ways to put Glove80 into the bootloader mass storage device mode for firmware loading.

Entering bootloader mass storage device mode from ZMK



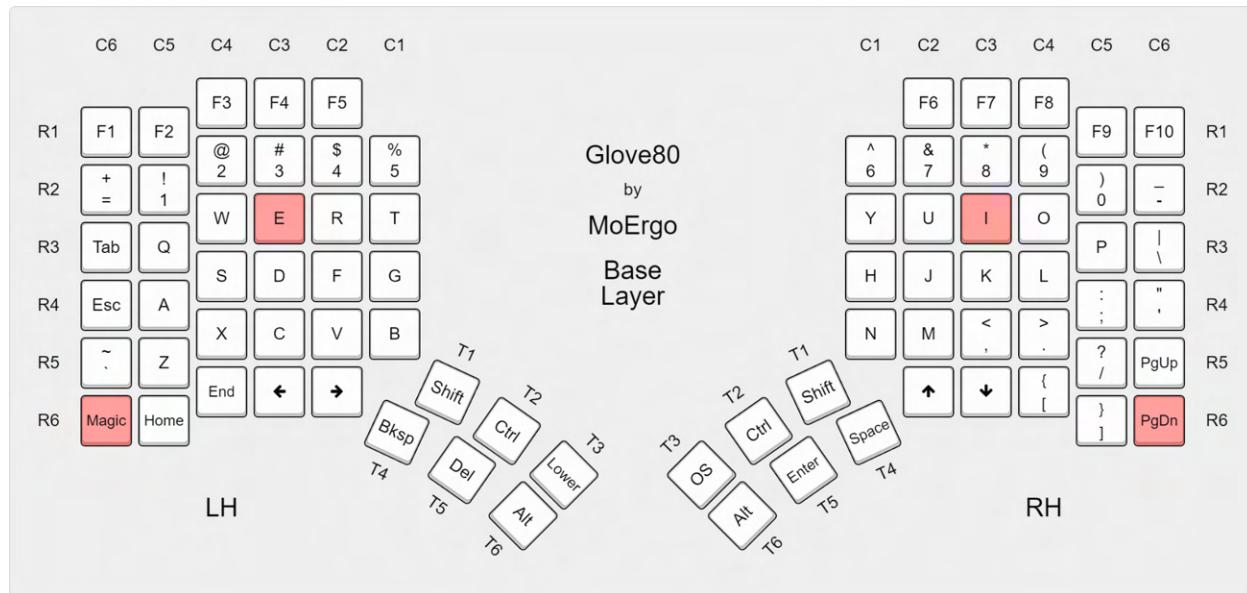
The simplest way is to use the key mapping on the ZMK key layout by activating the `&bootloader` behavior *on the half of the Glove80 that you want to load new firmware*.

On the default key layout, you can do so by

- Pressing Magic + Esc for the **left** half
- Pressing Magic + ' for the **right** half

Entering bootloader mass storage device mode on power-up

However if the ZMK firmware is corrupted, or if the key layout has assigned no keys to the `&bootloader` behavior, there is a fallback option.



To put the **left** half into the bootloader mass storage device mode:

- Switch off the power switch of the left half
- Referring to the row-column key above, hold C6R6 + C3R3 (on a default key layout, Magic + E)
- While holding the two keys, switch on the power switch of the left half

To put the **right** half into the bootloader mass storage device mode:

- Switch off the power switch of the right half
- Referring to the row-column key above, hold C6R6 + C3R3 (on a default key layout, I + PgDn)
- While holding the two keys, switch on the power switch of the right half

Replacing keycaps to match key layout

Changing the key layout will change the behavior of the keys. However if you are using labeled keycaps, the labels will no longer match the function of the modified key.

Glove80 is designed so that all keys use the same keycap profile, which means the keycaps are freely interchangeable between any two keys.

Here is how to match the keycaps with the modified key layout:

- Use the included keycap puller to gently pull out the keycaps that no longer match the key layout.

WARNING: It is important that you pull out the keycap gently; excess force can cause

damage to the key switch and/or PCB. Damage caused by excess force is not covered by the warranty.

HINT: It is generally easier to slide the keycap puller onto the keycap from the side of the keycap. Some gentle wiggling might be necessary.

HINT: If the keycap you need to remove is in the middle of the keyboard half, you may have to first remove other keycaps to reach it.

2. Push the correct keycaps gently onto the switches, to match the modified key layout.

Customizing the tenting angle

Benefits of tenting

If you press your palm flat on your desk and hold it there for a few minutes, you will feel tension on your forearms: you are experiencing forearm pronation. If you rotate your palms such that your thumb points slightly or more into the air, you should find the position more comfortable.

This is the purpose of tenting.

By default, Glove80 has a tenting angle that is comfortable for most people. However we found that this is one variable that differs greatly between users.

Therefore we built a clever tenting system into Glove80: The legs of Glove80 can be extended to change the tenting angle of the keyboard, with infinite levels of adjustments.

How to adjust the tenting angle



NOTE: We do not recommend changing the tenting angle until you have used Glove80 for a few days. Glove80 comes with a tenting angle that is comfortable for many people. It would be worthwhile to type on Glove80 for at least a few days to get a good sense of the ergonomics of Glove80, before adjusting the tenting angle.

Unlike other keyboards, Glove80 allows for fine tenting angle adjustments so that you can dial in exactly the right tenting angle for you.

Finding the most comfortable tenting angle is a journey of experimentation. Don't worry if you don't get it right the first time. Try what you think would work, test it out, and adjust accordingly.

Each half of the keyboard should be adjusted separately.

For lower angle tenting adjustments

To adjust the tenting angle of one half of the keyboard:

<Insert video>

1. Simply rotate the feet of the extensible legs clockwise or anti-clockwise (2 without palm rest, and 3 with palm rest) on the thumb/index finger side of the half keyboard, until the half is at a tenting angle that is comfortable for you. Make sure that the half keyboard sits stably on the desk; make adjustments to each individual leg if necessary.
2. [Optional]
If desired for extra stability, once you have completed adjusting the tenting angle, you can add M4 nuts to tighten up the legs. To do so, do this one at a time for each of the extended legs:
 - a. Take off the foot of one of the extended legs, by rotating the foot anti-clockwise until it comes off.
 - b. Now put one of the supplied M4 nuts onto the threaded rod that is attached to the foot, and rotate the nut until it is at the bottom of the threaded rod.
 - c. Put the foot back on its leg and adjust the feet until the keyboard half sits level on the desk.
 - d. Now turn the M4 nut with the included spanner until it is hard against the plastic case of the half keyboard.

For higher angle adjustments (up to roughly 25 degrees)

To adjust the tenting angle of one half of the keyboard:

<Insert video>

1. Unscrew the feet of the extensible legs (2 without palm rest, and 3 with palm rest) that are on the thumb/index finger side of the half keyboard.
2. In the Glove80 accessory kit, there are additional feet with no threaded rods attached, threaded rods, M4 nuts, and silicone bumper.

3. Pick 2 or 3 feet (matching the numbers in step 1), attach a silicone foot bumper to the bottom of each foot.
4. Attach a threaded rod of the length you think would work and attach to the foot, by rotating until it touches the silicone bumper.
5. Screw two M4 nuts onto the threaded rod. The first M4 nut should be screwed on hard against the foot. The second M4 nut should be loose on the threaded rod.
6. Now attach the threaded rods and feet into the legs in step 1. Adjust the height of each foot until the Glove80 half is stable on the desk and at the tenting angle you desire.
7. Once you have completed adjusting the tenting angle, turn the loose M4 nut on each threaded rod until it is hard against the plastic case of the half keyboard.

NOTE: If you desire even higher angle mounting, please see the section on [Custom Mounting](#).

Appendix: Specification

Ergonomics	
Contoured keywell	✓
Thumb cluster	6-key 2-row curved (patent pending)
Split	Wireless full split
Neutral tilt	✓
Tenting	Built-in & continuously adjustable
Low profile design	20mm off the desk to top of keycap of lowest key
Low travel switches	✓
Palm rest	3D-sculpted & detachable
Keys & Layout	
Number of keys	80
Key switch family	Low profile mechanical Kailh Choc v1 switches rated at 70 million+ presses
Key switch choice	Linear (Red), Tactile (Brown) and Clicky (White)
Keycap	Premium POM translucent MCC profile keycap, blank or labelled
Standard keycap language	🇺🇸
Additional keycap language	🇬🇧 🇩🇪 🇫🇷 🇮🇹 🇸🇪 🇯🇵 with add-on set
Rearrangeable keycaps to match layout	All keys share the same keycap profile
Colemak & DVORAK	✓
Connectivity	
Wireless Interface	Bluetooth LE 5.0
USB Interface	USB 2.0 over USB C
Split	Wireless full split
Neutral tilt	✓
Tenting	Built-in & continuously adjustable
Low profile design	20mm off the desk to top of keycap of lowest key
Low travel switches	✓
Hardware	
Microcontroller	2 x Nordic nRF52840, with 256kB ram and 1MB flash
Battery life (estimated)	With LEDs off, 2-4 weeks for left hand & 2 months+ for right hand. Test condition: powered-on 24/7 with ZMK sleep functionality disabled
Per-key LEDs	(Standard Edition) 40 individually addressable RGB LEDs; (Gamer Edition) 80 individually addressable RGB LEDs
Customizability	
Custom mount support	✓
Hardware extension support	6 digital GPIOs
Dimensions	
Width	370mm (14.6 in)
Depth (w/o palm rests)	168mm (6.6 in)
Depth (with palm rests)	203mm (8.0 in)
Height	59mm (2.3 in)
Weight	approx 600g (1 lb 5 oz)

Appendix: ZMK

Glove80 is designed to work with the open-source ZMK firmware. The ZMK community (www.zmk.dev) maintains the incredible ZMK firmware.

For more details on the ZMK features, configuration and build procedures please refer to the ZMK documentation at <https://zmk.dev/docs>. ZMK community has a Discord server at <https://discord.com/invite/sycytVQ>.

<Insert QR code or custom invite link>

The Glove80 fork of ZMK is maintained at <https://github.com/moergo-sc/zmk>.

Appendix: Custom mounting

Glove80 is designed to facilitate custom mounting, so that you could mount your Glove80 in countless creative ways.

Here are some of the possibilities:



How to custom mount

Procedure:

1. For the extensible legs, remove the feet by rotating them to reveal M4 studs.

2. For the non-extensible legs, use a craft knife to remove the silicone bumper, to reveal a M4 stud.
3. Attach M4 threaded rods or M4 screws and use other appropriate fasteners such as nuts to secure Glove80 onto your custom mounting mechanism.

Attaching Tripod Mounting Plate

MoErgo makes available mounting plates for Glove80 to easily attach to camera tripod and other mounts using the standard tripod mount screws (1/4"-20).

To mount the tripod plate onto a Glove80 half:

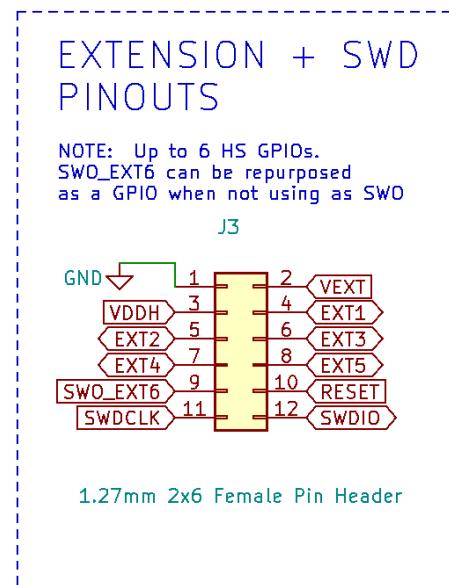
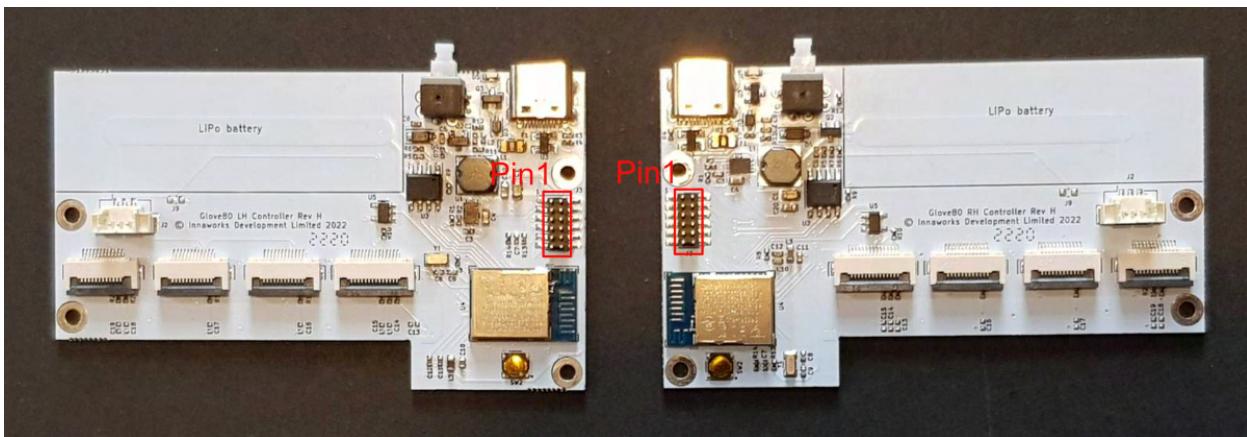
1. Follow the instructions in the [How to custom mount](#) section.
2. Turn the half upside down.
3. Add a foot without a silicone bumper, as a spacer, for each extensible leg.
4. Put the tripod mounting plate over the up-turned half, lining up the holes in the tripod mounting plate with the legs.
5. Screw each original foot with threaded rods (through the spacer foot if one exists) into the M4 stud in the leg.

Appendix: More Customizations

Extending the Glove80 electronics

WARNING: Attaching custom electronics to Glove80 can damage Glove80. If you damage your Glove80 by making custom modifications, the damage will not be covered by your warranty. Skills and experience are required to develop electronics. Do this at your own risk. Specifically the use of the GPIO pin header will void your warranty.

On each half of Glove80, 6 GPIO pins, GND pins and power pins are exposed via a 2x6 1.27mm pin header on the controller PCB.



Please note VDDH voltage changes depending on whether Glove80 is currently battery powered or usb powered. It can be anywhere from 3V to 5V. It is recommended you use a voltage regulator to power your circuit.

VEXT is the voltage that nRF52840 is internally operating in. It is also the voltage of the GPIO signals. VEXT is set by the bootloader, and is typically 2.4V.

Your circuit should be powered either by VDDH or VEXT. Please ensure that you are not exceeding the current limit. Generally speaking you should not draw more than 3mA from VEXT, and no more than 80mA from VDDH. However these current limits are not guaranteed, and are provided purely as a guideline. The amount of current used will depend on many factors, including the firmware version and what other peripherals (such as RGB LEDs) are powered on.

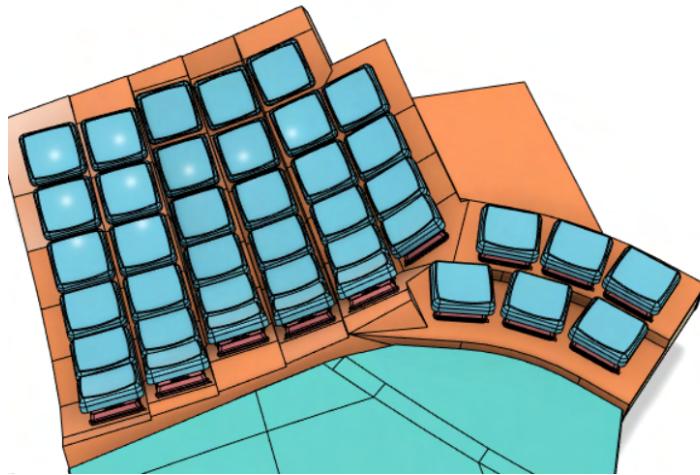
Your circuit must ensure that GPIO input signal voltage is no higher than VEXT. Otherwise permanent damage can occur. Please note that when the Glove80 is powered off, VEXT will be 0V but VDDH may not be 0V, for example if the Glove80 is charging. As such, care must be taken to ensure not to drive the GPIO when VEXT is 0V.

The pin mapping on nRF52840 are as follows:

	Left hand nRF52840 pin	Right hand nRF52840 pin
EXT1	P0.22	P0.21
EXT2	P0.21	P0.24
EXT3	P0.24	P0.20
EXT4	P0.20	P0.25
EXT5	P0.25	P0.22
SWO_EXT6	P1.00	P1.00

Side-Car Module

The underside of Glove80 provides a couple of M2 anchor points to position a “side-car” module.



MoErgo provides the STEP file for an example side-car, which you are free to use and modify.

https://cdn.discordapp.com/attachments/933641217596604426/996266731947434025/Glove80_LH_Side_Car_Template_v7.step

<Replace with a permanent link later>

A side-car module can be used to extend your Glove80 by developing additional hardware or peripherals. Some possible uses include:

- Adding an external trackpad
- Adding an external trackball
- Adding a display
- Adding a rotary encoder or additional key switches

Appendix: Compliance and Certifications

USA

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions. (1) This device may not cause harmful interference. (2) This device must accept any interference received, including interference that may cause undesired operation.

Canada

This device complies with Industry Canada license-exempt RSS Standard(s). Operation is subject to the following two conditions. (1) This device may not cause harmful interference. (2) This device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.