

Go60 User Guide

Introduction

How it works

Go60 is a split keyboard, consisting of a left half and a right half. Go60 runs the open-source ZMK firmware.

The left half is called the Central in ZMK vocabulary and acts as the “brain” of Go60. When connected to a host device (like a PC or a phone) the connection is always made with the left half.

When connecting Go60 to a host with a USB cable, the USB cable must be plugged into the left half. When Go60 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. To select which host Go60 connects to, and whether through USB or BLE, please see

The left half communicates with the right half (which is called the Peripheral in ZMK vocabulary) through a Bluetooth Low Energy connection or through the TRRS cable. Please see the section [Wired split and wireless split](#) for details

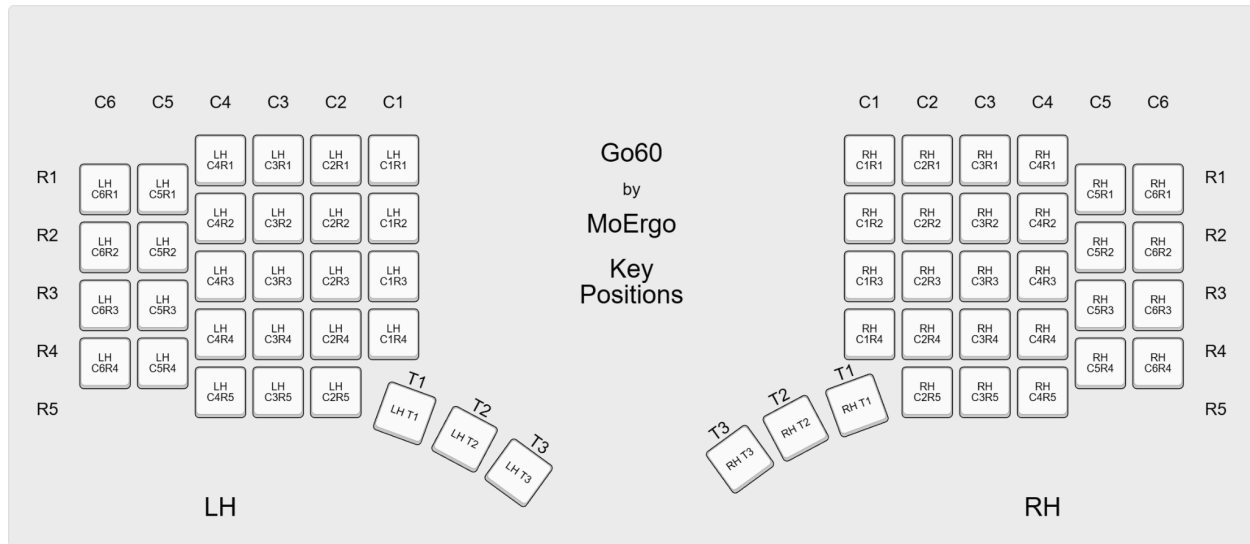
Connectors

At the back of each half of Go60 is the connector panel:

- USB-C port
- TRRS connector
- Power switch
- Red indicator LED

Conventions

Key position convention

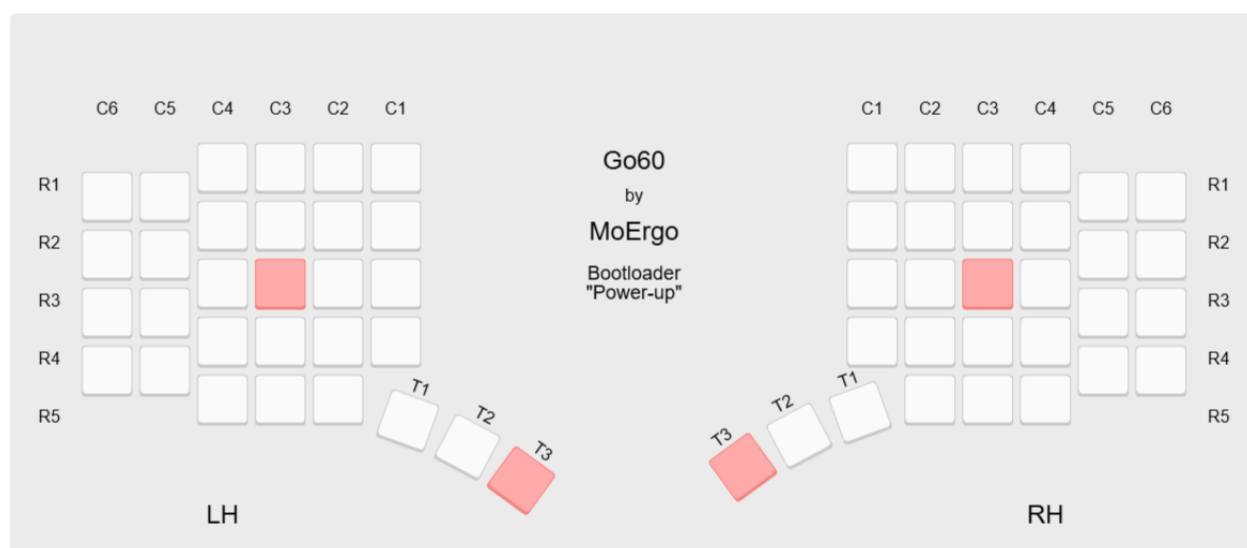


Bootloader functionalities

These system functionalities do not require the presence of ZMK firmware, and are always available.

Entering bootloader mass storage device mode on power-up

This function is for entering the bootloader mode, so that firmware can be loaded.



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

1. Switch off the power switch of the left half
2. Connect a USB cable from the host to the left half
3. Referring to the row-column key above, hold **T3 + C3R3**
4. While holding the two keys, switch on the power switch of the left half

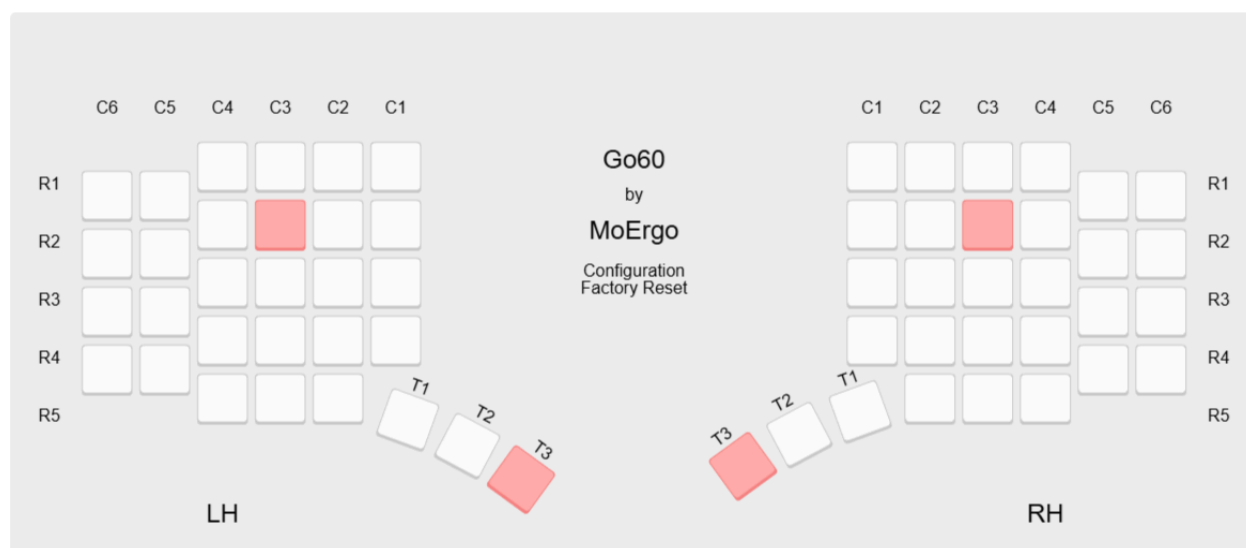
To put the **right** half into the bootloader mass storage device mode:

1. Switch off the power switch of the right half
2. Connect a USB cable from the host to the right half
3. Referring to the row-column key above, hold **T3 + C3R3**
4. While holding the two keys, switch on the power switch of the right half

Configuration factory reset and BLE re-pairing left and right halves

This function serves two purposes:

- Wipe the ZMK configuration
- Provides an opportunity to BLE pair the left and right halves



To perform the configuration factory reset procedure on the **left** half:

1. Switch off the power switch of **both** halves of Go60
2. Referring to the row-column key above, hold **T3 + C3R2** on the **left** half
3. While holding the two keys, switch on the power switch of the **left** half
4. Wait for 5 seconds while holding the two keys
5. Switch off the power switch of the **left** half

To perform the configuration factory reset procedure on the **right** half:

1. Switch off the power switch of **both** halves of Go60
2. Referring to the row-column key above, hold **T3 + C3R2** on the **right** half
3. While holding the two keys, switch on the power switch of the **right** half
4. Wait for 5 seconds while holding the two keys
5. Switch off the power switch of the **right** half

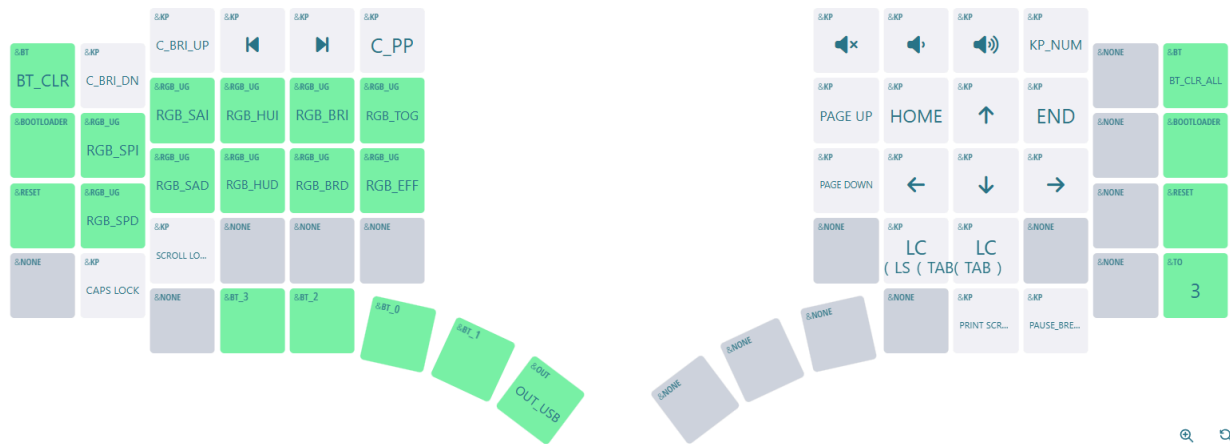
To BLE re-pair the left half and the right half:

1. Switch on the power switch of the left half and the right half at the same time
2. Enable RGB (`Magic + t` on the default layout) and check that both halves have RGB turned on. If the RGBs are not turning on a particular half, connect the half to a power source via USB and try again.
3. Disable RGB (`Magic + t` on the default layout)
4. Wait for at least one minute for the new configuration to be persisted into the memory.

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Magic Layer:

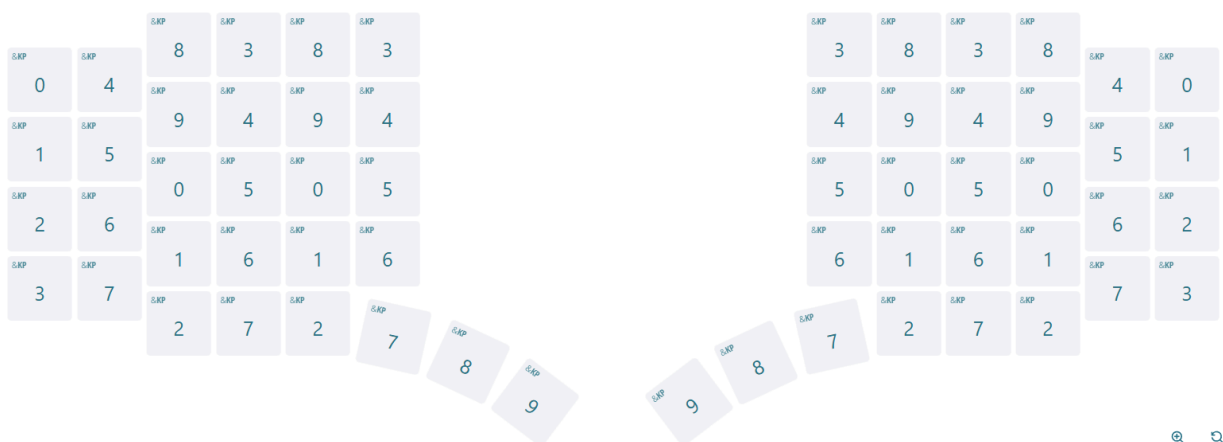
To enter Magic Layer, hold down **LH C6R4**.



Factory Test Layer:

The Factory Test Layer is designed for factory testing key switches. To exit this layer please power off the left half.

Enter Factory Test Layer with this key combo Magic-RCTRL (i.e. **LH C6R4 + RH C6R4**)

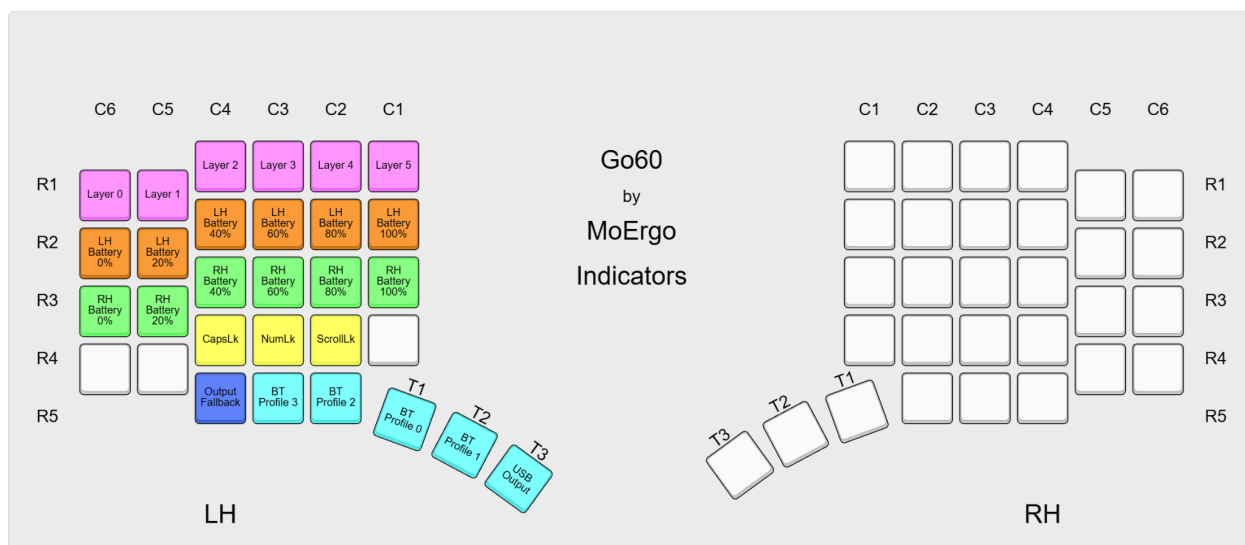


Indicators

When you single tap the **Magic** key, the status indicators are activated for 10 seconds. The RGB LEDs under the keys on the left hand side of Go60 will light up to indicate the status of the Go60, showing:

- Caps lock, scroll lock, and num lock status
- The battery level and status of both left and right halves
- The status of each of the 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 corresponding indicator is red, the lock is enabled.

Key layout layer status_

If the corresponding 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_

LH R2 (i.e. row 2) indicates the battery status of the left half of Go60.

LH R3 (i.e. row 3) indicates the battery status of the right half of Go60.

The number of LEDs in each row indicates the charge level:

- 1 LED: 0 to 19%
- 2 LEDs: 20 to 39%
- 3 LEDs: 40 to 59%
- 4 LEDs: 60 to 79%
- 5 LEDs: 80 to 99%
- 6 LEDs Green: 100% or charging. See note below.
- 6 LEDs Red: Left half and the right half have lost connection. See note below.

If the battery level is less than 20% the row will be in red.

Otherwise, if the battery level is less than 40% the row will be in yellow.

BT and USB indicators_

Each of the four BT Profile outputs and one USB output of Go60 is represented by an RGB indicator. The meaning of the colors for an output indicator is:

- **Purple:**
 - For BT Profiles: No device is paired to this BT Profile.
 - For USB: Unplugged
- **Red:**
 - For BT Profiles: The output device is paired but not connected.
 - For USB: Powered only but no data. *Note: Some chargers and USB power banks appear as USB hosts and will appear as green or even white.*
- **Green:** The output device is connected, but not being used for output.

- **White:** The output device is connected and is the current *actual output device* to which typing will be sent.

Connecting Go60 to host devices

Introduction_

Go60 is capable of wirelessly connecting to your computer, your phone or other devices through Bluetooth Low Energy (BLE). Your devices need to support Bluetooth 4.2 or above. Go60 is also capable of connecting to one device through the USB port at the back.

Go60 supports simultaneously connecting to up to 4 paired Bluetooth LE host devices ('BLE host'), and one USB-connected device. Conceptually speaking, Go60 has 4 BT Profiles, numbered BT Profile 0 to BT Profile 3.

Each BT Profile can be paired with a different BLE host. If you try to pair with the same BLE host using two BT Profiles, pairing will fail and may cause unexpected 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 quick single-tapping the corresponding key highlighted in blue above.

Once paired and connected, you can quickly switch between BLE hosts 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 pressing `Magic + Enter` (on the default key layout).
- If you then want to switch to the Android phone, you can switch to BT Profile 1 by pressing `Magic + Tab`.
- If you want to switch to the USB-connected device, you can do so by pressing `Magic + LGUI`.

Pairing with a BLE host_

Note

Before you pair with a BLE host, if you had previously paired the Go60 with the same BLE host, you must first remove the pairing from both the BLE host and Go60, otherwise the pairing attempt will fail or could cause unexpected behavior. Please see the section [Unpairing from a BLE host](#).

Pairing procedure:

1. Select a BT Profile on Go60 that is currently not paired with a BLE host.
2. Press the Magic key. The selected BT Profile should be indicated in purple, confirming that it is not already paired to a device. See the section on [BT and BLE indicators](#) for further details.
3. On the BLE host you intend to pair with, use the procedure appropriate for your operating system to pair with the “Go60” device.

Troubleshooting BLE_

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

1. Does the BLE host support Bluetooth LE version 4.2 or later? If not, the BLE host may not be compatible with Go60 using BLE.
2. If the “Go60” device is not listed among the new devices, or seemingly refuses to connect, it is possible there already exists a previous pairing with Go60. To re-create the pairing, first delete the existing pairing on both Go60

and the BLE host as described in [Unpairing from a BLE host](#) and then re-create it as described above.

Unpairing from a BLE host_

To un-pair Go60 from a BLE host, you must remove the pairing from both Go60 and from the host operating system. Procedure:

1. On Go60, select the BT Profile that was previously used to pair with the BLE device. If you don't know which BT Profile was used, please refer to the section [Unpairing from all BLE hosts](#).
2. Press the key(s) to clear the bluetooth pairing. On the factory-default key layout, the keys are `Magic + '='`.
3. On the BLE host that was previously paired, use the procedure appropriate to the operating system to remove the pairing.

Unpairing from all BLE hosts_

Warning

This procedure will remove pairing with **all** paired BLE hosts on the Go60. Please use this procedure with care.

Note

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

Procedure:

1. Press the key(s) to clear all Bluetooth pairings for all 4 BT Profiles. On the factory default key layout, the keys are `Magic + '-'`.

2. On each BLE host that was previously paired, use the procedure appropriate to the operating system to remove the pairing.

BT Indicators_

Go60 provides indicators to show the status of each BT Profile, to indicate if a BT Profile is paired, or connected, or working as the output device.

Please see the section [BT and USB indicators](#) for further details.

ZMK USB/BT Output Fallback Mechanism_

If Go60 is simultaneously connected to both a USB device and a BLE host device, and the currently selected device is disconnected, Go60 will automatically switch its output to use the opposite connection method.

- If Go60 is set to output to USB and the USB device is disconnected, the Go60 firmware (ZMK) will automatically fall back to output to the last selected BT Profile.
- If Go60 is set to output to a BT Profile, and the BLE host is disconnected, the Go60 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, Go60 will return to output to the originally selected connection method.

As described in the section [BT and USB indicators](#), when indicators are active Go60 will always highlight the current actual output device, even if the output was activated by automatic output fallback. When output fallback is active, Go60 will display this using the 'Output Fallback' indicator on LH C4R5.

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

Advanced usage: temporarily disconnecting an active BLE connection_

On the default key layout, you can explicitly and temporarily disconnect a connected BT Profile by pressing the Magic Key and quickly double-tapping the corresponding BT profile key (highlighted in blue above), as long as the target BT Profile is *not* the currently selected profile.

This can be helpful in cases when host devices (such as some iOS or Android devices) behave differently when a Bluetooth keyboard is connected, for example by hiding their on-screen keyboard. Explicitly disconnecting the BT Profile will restore the on-screen keyboard.

Battery-Powered Operations

Go60 can be USB-powered or battery-powered. Each half of Go60 has a separate lithium-polymer battery, and is powered independently.

Charging¶

To charge one half of Go60, simply plug the half into a PC or USB charger with a USB-C cable. Typical charge time is around 8 hours.

You can continue to use Go60 while charging.

We strongly recommend against the use of non-certified USB power sources or cables. We also strongly recommend against USB power sources capable of supplying voltage higher than 5V (such as USB PD chargers).

WARNING: Use of such items with Go60 will void your warranty.

Battery charging status and battery level¶

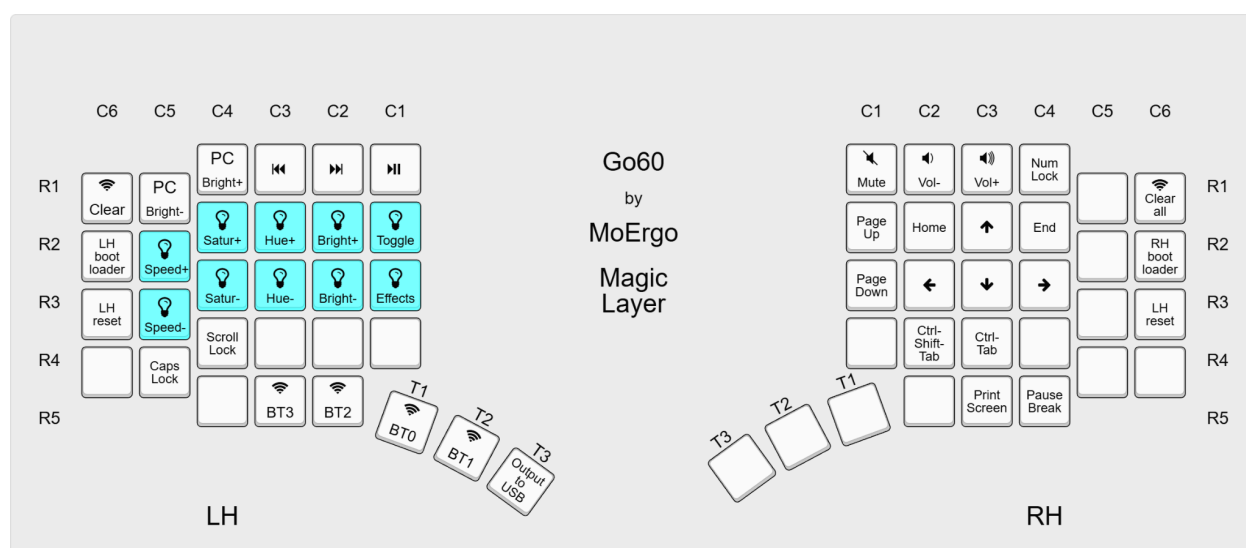
Go60 has indicators to indicate the battery charging status and battery level of both halves.

Please see the section on [Battery charging status and battery level¶](#) for further details.

RGB operation

The RGB underglow displays beautiful patterns on your Go60. On the default key layout, the RGB underglow function is controlled on the Magic Layer by the keys highlighted in the diagram below.

Magic layer RGB



On a default layout, the following functions in the Magic Layer controls the RGB functions:

- Toggle: Turns the RGB Underglow function on and off
- 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

RGB LEDs can consume a lot of power, especially at peak brightness. To extend the battery life, Go60 implements an automatic mechanism for the RGB underglow feature:

- When the battery level is below 20%, Go60 will automatically limit the maximum brightness of RGB Underglow.

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- When the battery level is below 10%, Go60 will automatically disable the RGB Underglow feature. However, the Indicators function will continue to operate.

Trackpad

Go60 is equipped with two 40mm trackpads, one on each half. Each trackpad is individually programmable.

With the default layout, the two trackpads behave as follow:

- Mouse movement on the right hand
- Click on right hand maps to a primary mouse click
- Movement on left hand maps to the scroll wheel
- Click on left hand maps to a secondary mouse click

Wired split and wireless split support

The two halves of the Go60 can operate in wired split mode or wireless split mode. Please note that this is orthogonal to the method Go60 communicates with the host computer (which is either BLE or USB).

When operating in wired split mode, the two halves are connected with the provided TRRS cable.

When operating in wireless split mode, the two halves are NOT connected with the provided TRRS cable.

It is safe to disconnect and connect the TRRS cable at any time. Go60 is capable of TRRS hot-plugging.

WARNING: DO NOT connect Go60 with any other equipment through the TRRS connector. This will likely result in permanent damage to both Go60 and the other equipment. Resulting damages are specifically excluded from warranty.

WARNING: If both halves of Go60 are connected to chargers/devices through the USB cables, and the two halves of Go60 are also connected via a TRRS cable, a ground loop can result if the two connected USB devices/chargers are connected to two different grounds. It is your responsibility to avoid such ground loops, as the ground loops could cause permanent damage to electronics. Resulting damages are specifically excluded from warranty.

Powering the right half by the left half

The left half will power the right half under the following circumstances:

- Both halves have power switches switched on
- AND the left and right halves are connected via the provided TRRS cable
- AND the left half is plugged into an active USB power source;
- AND the right half is NOT connected to a USB power source; the right half will always preferentially receive its power from a connected USB power source;

Please note that Go60 is capable of operating with the LiPo battery disconnected and/or removed. If you intend to have the two halves permanently connected in a wired manner, it is recommended to disconnect and remove the LiPo in both halves.

Communication between the two Go60 galves

When the two halves of Go60 are connected via the provided TRRS cable, communication between the two halves goes through the TRRS cable.

When the two halves of Go60 are not connected via the provided TRRS cable, communication between the two halves goes through a BLE connection.

If one half has the TRRS plugged in, and the other half has no TRRS plugged in, communication between the two halves will fail.

If the TRRS cable is plugged or unplugged while the two halves are powered, each half will automatically switch the inter-half communication method.

FCC Statement

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.

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.