DD Micro User Guide

V0.2

DD DevGroup.

Product Overview

DDMicro has many attractive features.

- Bluetooth Low Energy 4.0 connection to up to 8 devices.
- USB Type C connection support
- Build-in Lithium-ion rechargeable battery
- Fully NKRO support(Max report keys are limited by USB protocol to 6)
- Standard Cherry MX switch footprint.
- Configurable individual RGB backlight(Optional)
- Up to 8 layers fully configurable key mapping
- Support split configuration of number keys with its symbols
- Multiple keyboard layouts
- Easy configuration tool
- Simple micro key stroke support(multiple modifier keys plus one character key)

DDMicro is designed with a compact 50% layout. It can provide the similar portability of a 40% keyboard. But due to two extra columns of keys, its user experience is compatible to a 60% one.

DDMicro is designed to be flexible to use, light weight to carry, easy to configure, and effective to type.

Out Looking

DDMicro's top side is fully covered by 4 x 14 keys, and surrounded by an ultra thin frame. On its back side, there is a USB Type C connector, a power charging indicator, and a power switch, located on the right.

The figure below shows the default layout with key definition. There are three reserved function keys. They are configured to have special usage when the keyboard is powered on.

The first key on top row(Esc key in default definition) is Bluetooth Erase Band Key. Turn on keyboard while holding this key can empty the paired device list and re-enable Bluetooth advertising.

The second key on top row('q' key in default definitions) is Bluetooth Add Band Key. Turn on keyboard while holding this key can temporarily enable Bluetooth advertising for adding a new device to paired list.

The third key on top row('w' key in default definitions) is Configuration Mode Key. Turn on keyboard while holding this key can switch keyboard into configuration mode. This mode is used for re-flashing new key mapping definition.

Battery

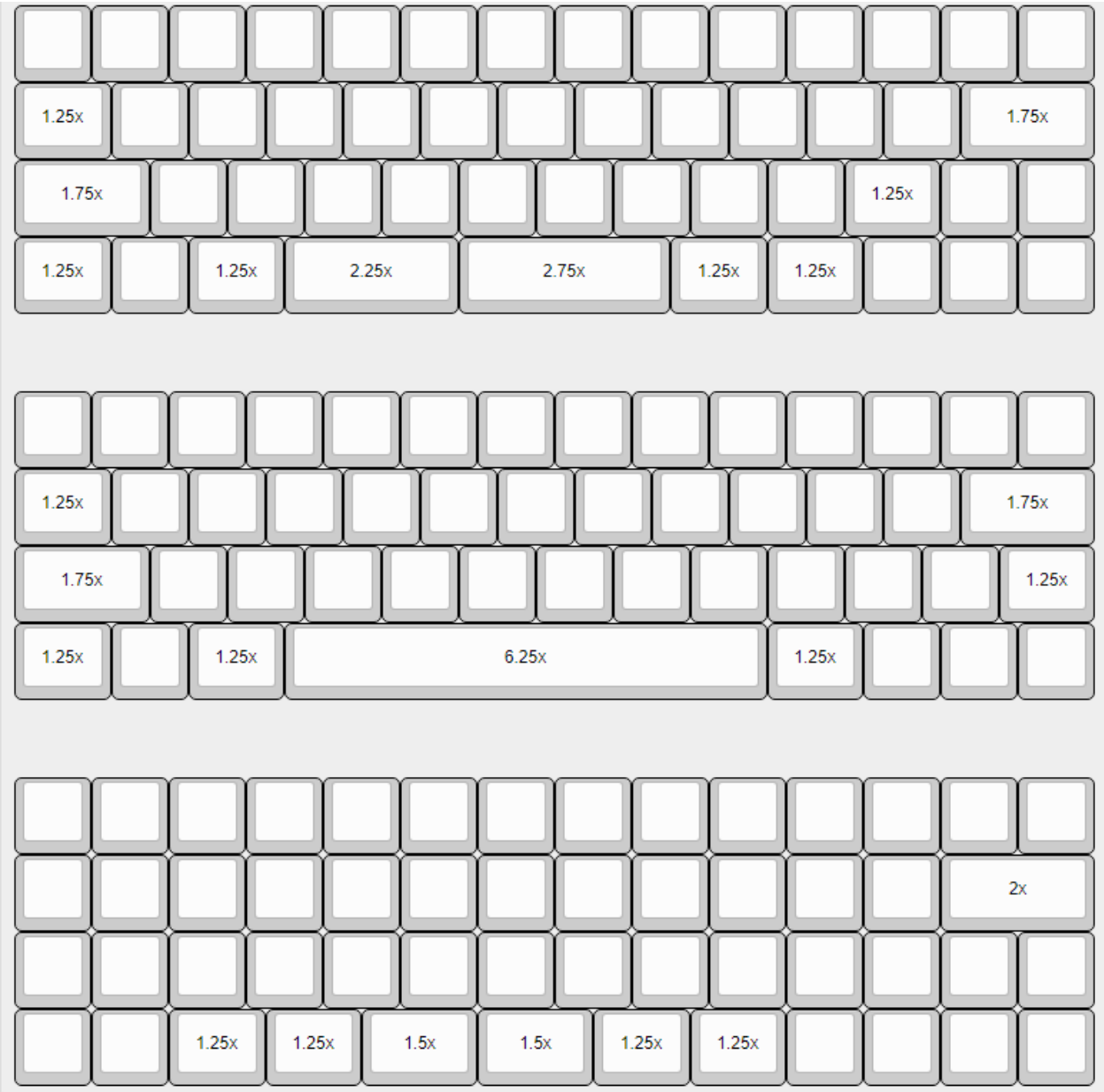
The default build-in battery is a 1100mAh Lithium-ion rechargeable battery. Extra large capacity can be selected also. All default batteries have build-in safety protection IC. In daily usage, DDMicro can be used for 3+ weeks with backlight turning off, or 100+ hours with backlight in 50% brightness.

When the battery voltage becomes too low, the keyboard will automatically switch off. Please connect the Micro USB cable to charge the battery. Don’t forget to turn on the power switch while charging, otherwise the battery will not be connected to power. The keyboard is designed in dual modes. Connecting USB cable to your computer, the keyboard can be used in USB mode while charging.

A red LED indicator close to the USB port can show the charging status.It will turn on while charging, and switch off after the battery is full.

Keys Layout

Fully considered the customisation possibilities, DDMicro is designed to support multiple layouts. You could select different mounting plate to setup your preferred layout. Some plate may support multiple layout even. Here are some most popular layouts we recommended. And more layout options will be released later.



Bluetooth Pairing

Following the steps below to connect DDMicro to a host device.

1. Make sure the battery has not run out. Turn off power switch, and make sure that USB cable is not plugged.

2. Hold on Bluetooth Erase Band Key(the most left key in top row), or Bluetooth Add Band Key(the second left key in top row), and turn on power switch.

3. Turn on Bluetooth searching action on your host device (smartphone/Laptop/PC).

4. Wait for seconds and a device named as “DD Micro” will show up in the list. Select it to connect.

5. If the device is not visible after 10 second, please re-do step 1-2, and check your Bluetooth setup in host device.

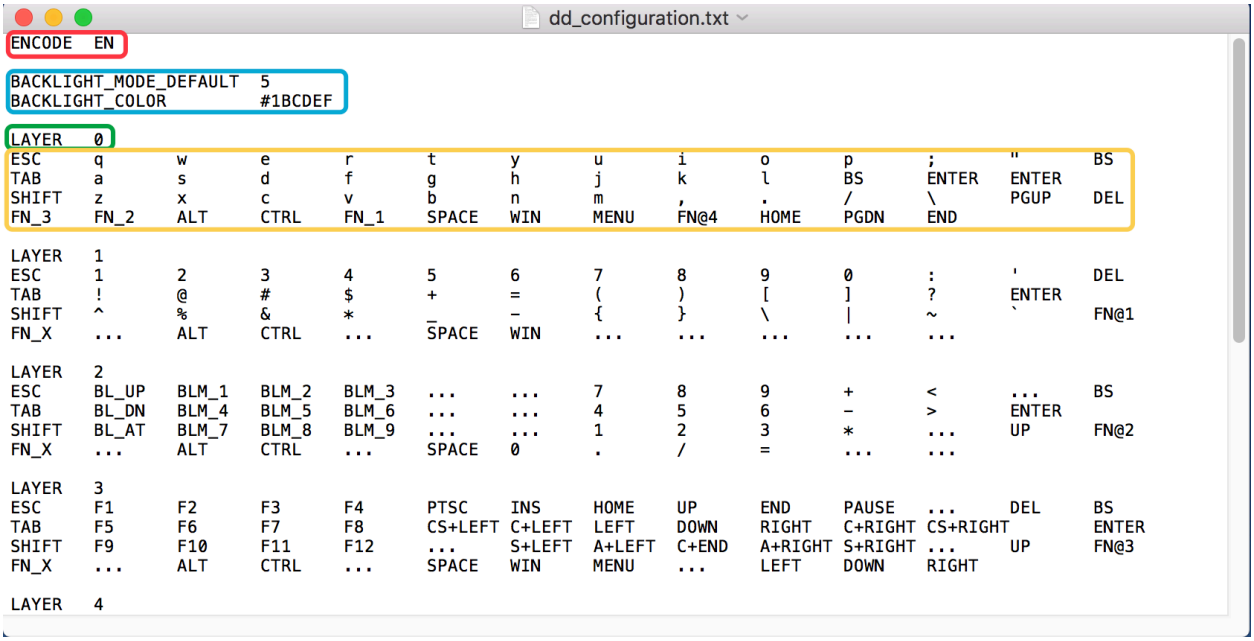
Customize Your Key Definition

DDMicro supports up to eight independent key definitions on every key position. They are organised based on the concept of “Function Layers”. A collection of definition for all keys mapped to the same Function ID is called “one layer”, and can be enabled by triggering(pressing) a defined function switch key. The key definitions for DDMicro can be single key codes (characters, symbols, function keys, etc), but also simple micro key combinations (modifier keys + a basic key, for example Ctrl + v).

To customize your key definitions, you need to download DDMicro configuration application called “DDConf” and run it on a Windows/Mac computer. It does not require installation nor any other support driver. It is released as a Zip package. Uncompress it to any place, you will get three files in the folder:

- dd_configuration.txt: key definition file. You could change key definitions by editing this file in text editor, like Notepad. (UTF-8 encoding support is required)
- ddconf.exe: a Windows command line tool for downloading dd_configuration.txt content to your DDMicro keyboard via USB port.
- ddconf: a MacOS command line tool for downloading dd_configuration.txt content to your DDMicro keyboard via USB port.

The file dd_configuration.txt should be written in a specific structure, otherwise the configuration tool cannot parse it correctly. This configuration file is case sensitive, which means ‘a’ and ‘A’ give different result. And this file is parsed based on each line. One line to present a case description, or a set of key definitions for a keyboard row. Use whitespace or TAB mark to separate description segments or the definition for each key position. Here a screenshot shows the typical content of it.



The first line is always tagged with “ENCODE”. It describes the keyboard language layout of this configuration. Currently it supports “EN” (US standard layout) and “SV” (Swedish layout). This is marked in red box in the screenshot.

The lines in blue box are backlight configuration. The backlight default mode (with tag “BACKLIGHT_MODE_DEFAULT”) and backlight color (with tag “BACKLIGHT_COLOR”) can be set separately. backlight color is only used in single color modes. With rainbow modes, the color will enumerate all RGB colors. The default mode should be set to a mode ID within 1 ~ 9. It will be set after the keyboard is powered on. The backlight color is set with a standard RGB color code, 6-digit HEX number starts with a ‘#’ symbol.

The green box in the screenshot is layer declaration. They should start with tag “LAYER” and followed by a number from 0 to 7. Layer 0 is default layer, which means after power on, or reset layer, DDMicro will switch to this layer.

The lines marked in orange box are key definition lines. Each line refers to a row of keys on DDMicro. Attention that in this file, all possible key positions should be explicitly defined. It might be not mounted to a dedicated key on you layout setup, but you still have to define it in dd_configuration.txt file. You could use the empty tag(…) as place holder for the empty positions. This is because the firmware does not know which layout you have chosen, so you have to always provide a complete setup. In each line of key definitions, the layer information is not explicitly declared. This means the closest layer definition before will be inherited. And the row number will be incremented by one on each new line.

For how to set the definition for each key position, please refer the “Tag list in configuration file” chapter and “What’s more you should know” chapter.

Download Your Key Configuration

After you prepare a good dd_configuration.exe file, you could follow the steps below to download it to your DD Micro keyboard:

1.Turn off power switch, and make sure that USB cable is not plugged.

2.Hold the third left key on top row, then connect USB cable to computer. This will switch DDMicro to configuration mode. In this mode, you cannot use it to type.

3.Double click ddconf.exe(or ddconf file in MacOS) to run the download tool. Or type in the application name in Command Line(or Terminal in MacOS) to execute it, but this requires you to browse to the execute file folder first.

4.Following the instructions shown on your screen. You may need another keyboard to help you press any key to continue, or use the on screen keyboard or any tools to simulate some key press events.

5.The download progress may take about 2-5 seconds, this is based on how many layers you have.

6.After download progress finishes, DDMicro will switch to keyboard mode automatically. Press any key to exit download tool and try with your new key definitions!

Tag List in Configuration File

Tag Name	Tag	Comment
Null	…	do nothing
Change layer	FN_?	replace '?' with 0-7
Stick on layer	FN@?	replace '?' with 0-7
Reset to default layer	FN_X	reset to default layer
Alt	ALT	
Control	CTRL	
Win/Command	WIN	
Shift key	SHIFT	
Tab key	TAB	
Backspace	BS	
Delete	DEL	
Escape key	ESC	
Space	SPACE	white space bar
Enter	ENTER	
Up	UP	arrow key '↑'
Down	DOWN	arrow key '↓'
Left	LEFT	arrow key '←'
Right	RIGHT	arrow key '→'
Page up	PGUP	
Page down	PGDN	
Home	HOME	
End	END	
Insert	INS	
Print screen	PTSC	
Pause	PAUSE	
F1 – F12	F1 – F12	Function key 1-12

Caps Lock	CPLK	
Num Lock	NMLK	
Scroll Lock	SCLK	

Backlight Mode	BLM_?	replace ‘?’ with 1-9
Backlight Brightness Up	BL_UP	Increase brightness 1 step
Backlight Brightness Down	BL_DN	Decrease brightness 1 step
Backlight Brightness Auto	BL_AT	Auto adjust brightness

What's More You Should Know

- Because the macro key definitions are supported, so the configuration file is case sensitive. Which means the definition 'a' and 'A' will give different output. 'a' equals press key 'a' on ordinary keyboard. And 'A' equals press 'Shift' and 'a' at the same time.

- If you want to type micro key definition with modifier keys, use a character '+' to combine them. In micro definition, modifier keys should use their short names. You could combine one or more modifier keys to one character/number/function/arrow key.

    - Short names: C (Control), A(Alt), S(Shift), W(Win/Command)

    - Example: 'CR+RIGHT' means press Control, Alt and right arrow keys at the same time. Modifier keys' sequence can be shuffled, this equals to 'AC+RIGHT'.

- With the micro key definitions, you could define symbol keys individually. Which means you could map number key '1' with symbol key '!' to different key positions. Firmware will help you to press 'Shift' if needed.

- Because the keyboard typing mechanism applied for computer, the modifier key's state will be inherited until all keys are released. So please pay extra attention when typing micro key definitions. We recommend to leave a clean time between typing micro keys and other keys. You might saw some wrong characters send out while typing micro keys to fast.

    - Example: When typing key definition '!', actually DD Micro send out key combination with '1' and a 'Shift' press. If you type 'a' before you release key '!', the 'Shift' key will be automatically inherited by your driver, then you will get an 'A' instead. So we strongly recommend you to slow down while using micro keys.