

Quick Start Guide

“Model X” Bluetooth/USB Controller for IBM Model M keyboard

Present controller is Plug & Play, as you just need to replace the original one to have a perfectly functioning keyboard, without having to make any changes to the keyboard.

A ZMK opensource firmware customization has been loaded onto the board (<https://zmk.dev/>)

The firmware present on this controller is multi LAYOUT:

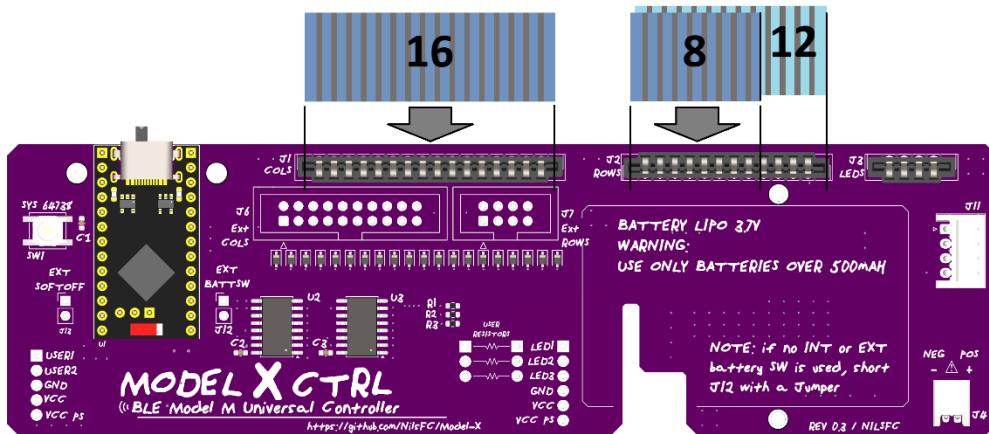
- ANSI 101: 101-key keyboards with the “Horizontal” Enter key, such as 1391401 (USA);
- ISO 102: 102-key keyboards with an “L” Enter key, such as 1391402 (Fr), 1391403 (De), 1391404 (It), 1391405 (Sp), 1391406 (UK);
- ISO 122: 122-key keyboards with “L”-shaped enter key, known as M122;
- ANSI 84: 84-key keyboards with “Horizontal” Enter key, known as SSK (Space Saving Keyboard);
- ISO 85: 85-key keyboards with “L”-shaped enter key, known as SSK (Space Saving Keyboard);

It is possible to switch from one layout to another by connecting to the keyboard with ZMK-Studio.

ZMK-Studio is available online: <https://zmk.studio/> *1
or by installing: <https://github.com/zmkfirmware/zmk-studio/releases/> *2

*1: configuration is possible with USB cable / *2: configuration is possible with both USB and BT cable

Mounting



Some Model M keyboards presents a 12 contact flat for the rows, some other have 8 contacts.

The 8 contact flat type have to be aligned to the left, towards the columns connector.

Bluetooth pairing

If you experience problems with the first Bluetooth pairing of the controller, probably it's because it is still associated with the previous-computer used for testing the board.

It is recommended to delete the Bluetooth profiles with the key combination **PAUSE + F1** and try pairing again. On M122 combination is **F24 + F1**.

Customizations

A small customization has been added to the standard layout: In the ISO 102 layout, it is possible to obtain the left Windows key by holding down for a longer time the key located next to the left Shift key.

If desired, with ZMK-Studio it is possible to further customize the keyboard. This can be done in real time by opening a browser and entering the address: <https://zmk.studio/>

ATTENTION: All changes will be in real time, but they must still be Saved with the appropriate button, otherwise they will be lost when power is removed from the board. Furthermore, there is the risk, due to changes made at random, of messing up the layout, so much so that it will no longer possible to use it.

For testing it is recommended to keep a second keyboard connected to the PC.

References

For further information, please visit the project's github page <https://github.com/NilsFC/Model-X/> or the related Wiki <https://github.com/NilsFC/Model-X/wiki>

Recharge

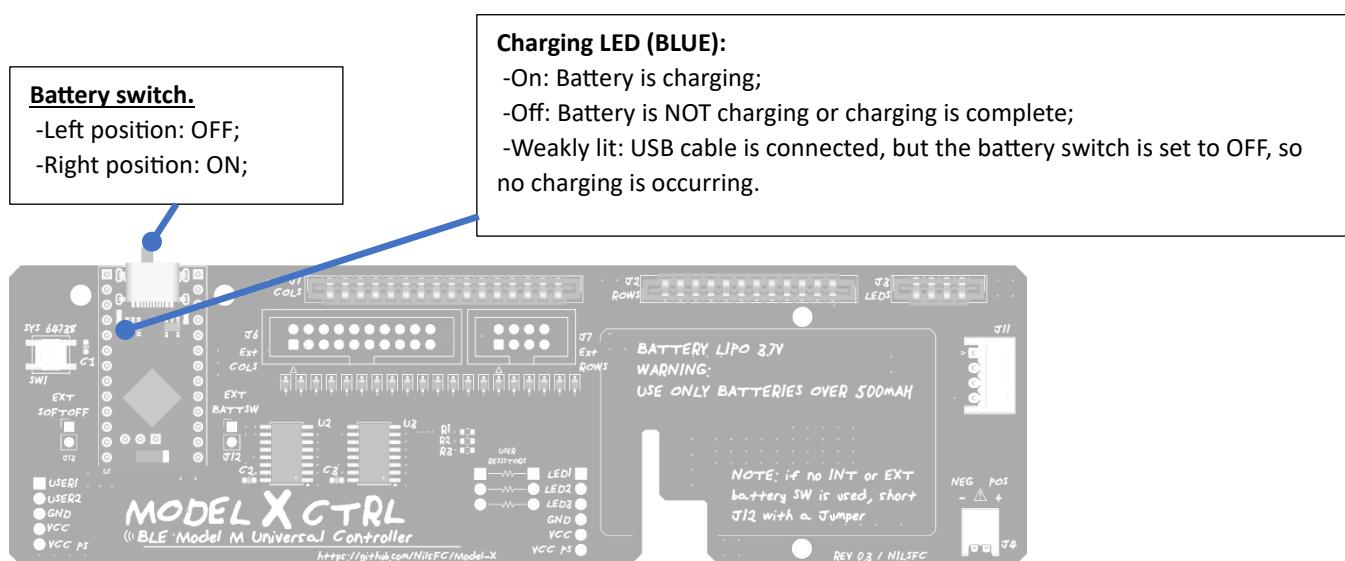
Charging is done via a USB Type-C cable at a rate of approximately 500mA per hour..

Therefore, a 2000mAh battery will take about 4 hours to fully charge.

The keyboard features a battery switch that physically disconnects the positive terminal of the battery.

This switch allows the keyboard to be completely powered off.

NOTE: The battery switch must be kept in the ON position during charging; otherwise, the battery will not charge.



Bluetooth Profiles Management

The ZMK firmware supports up to 5 Bluetooth profiles (or connections), allowing the keyboard to be paired with multiple devices (computer, tablet, smartphone, etc.) without needing to repeat the pairing process each time.

The keyboard will appear as "connected" to multiple devices simultaneously, but only the device associated with the currently active profile will receive keystrokes.

To pair the keyboard with a new device:

- 1- Select a free profile (not already in use), or clear the current profile to free it.
- 2- Start the pairing process from the new device.

⚠ Warning: Pairing a new device to a profile that already has a bond may result in connection issues.

These behaviors can be assigned to keys using ZMK Studio:

&bt BT_SEL 0..4	Select profile 0...4
&bt BT_NXT	Select next profile
&bt BT_PRV	Select previous profile
&bt BT_CLR	Clear active profile
&bt BT_CLR_ALL	Clear all profiles