

Béton3 // Build Guide

Off-the-Shelf Parts

Welcome to the first Build Guide for Béton3. This Build Guide outlines the “off-the shelf” parts you’ll need to build Béton3, along with links to purchase compatible parts.

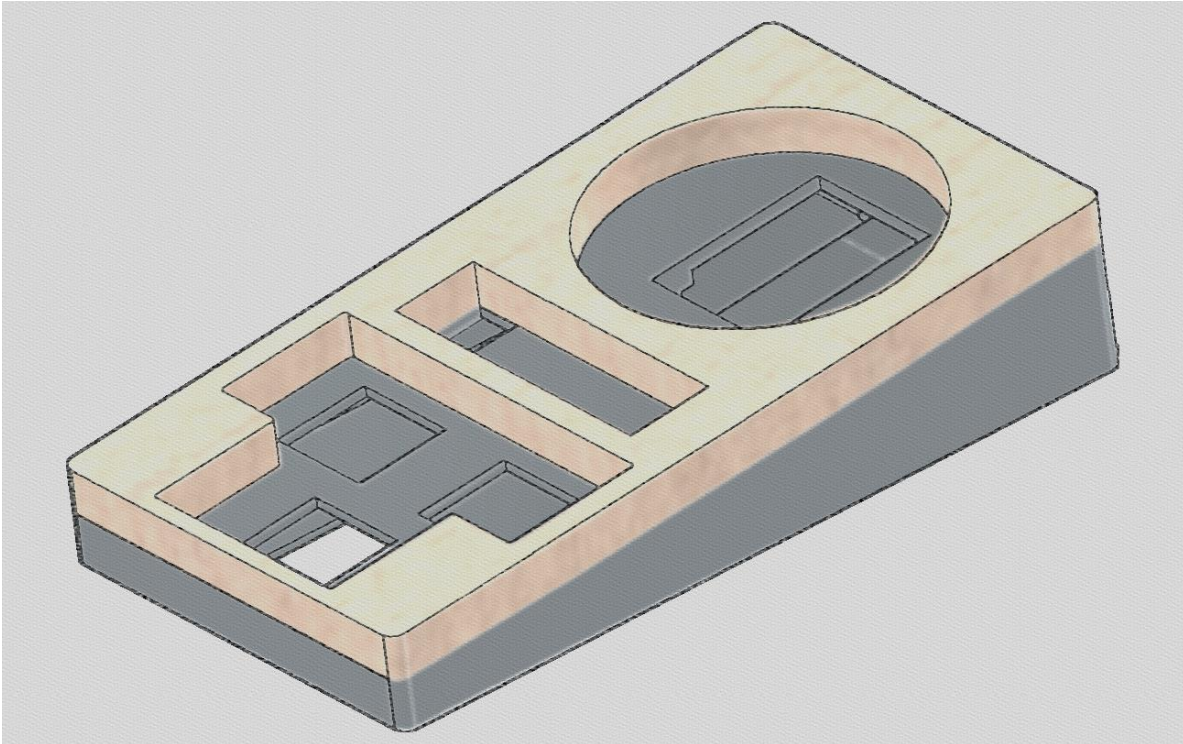


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Arduino Pro Micro / Pro Micro Clone

Béton3 is based on the Arduino Pro Micro platform, a commonly used platform based on the ATmega32U4 microcontroller. The Pro Micro brings a lot to the table – it's affordable, has a vibrant community, and is compatible with [QMK Firmware](#), a popular open source firmware for input devices such as keyboards, mice, and MIDI devices.

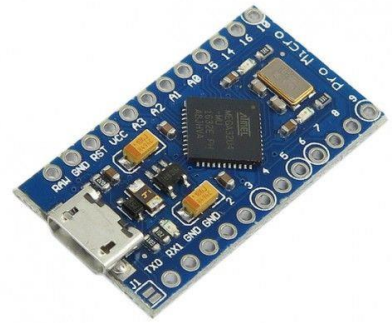


Figure 1 - A generic Pro Micro clone that you can find everywhere online.

Buying Options

One of the best features of the Pro Micro is the sheer spectrum of options available for every budget.

The most **basic option** is a Pro Micro clone, the option that I personally chose for my build. Pro Micro clones are widely available, and generally go for anywhere from \$3-10, depending on shipping speed: ([AliExpress](#)) ([Amazon](#))

Another option is the SparkFun Pro Micro, the original board design that has since been cloned endlessly. Theoretically, the SparkFun should perform identically, as it is pin-compatible with all clones: ([SparkFun](#))

Both above options use micro-USB connectors which have a reputation for breaking off with lots of insertion cycles. As an alternative, there are some community-made Pro Micro boards that feature USB-C connectors instead. These boards are more expensive and higher quality boards that are generally pin-compatible with Pro Micro/clones: ([Elite-C V4](#)) ([SparkFun Qwicc](#))

Rotary Encoder

Béton3's chassis is designed around a commonly available stepped rotary encoder marketed for Arduino projects. The encoder is sometimes referred to with a "KY-040" model identifier, and is generally widely available on e-commerce sites. Minor differences such as PCB color should be irrelevant, as long as the PCB form factor is the same size and the encoder has 5 pins.

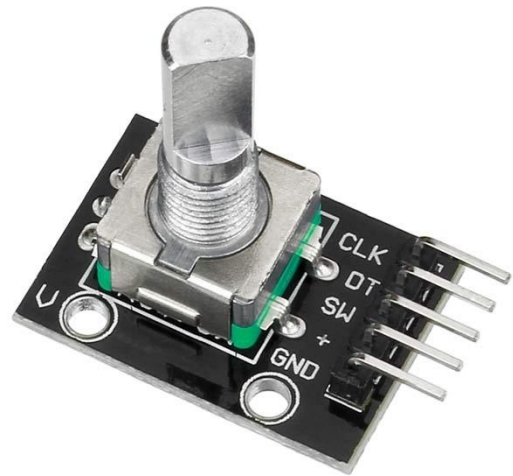


Figure 2 - An example of the rotary encoder in question.

Buying Options

These encoders can be picked up for as low as \$0.47 on AliExpress. If Prime shipping is more your speed, you can pick up a pack of multiple encoders for about \$1 per encoder:

[\(AliExpress\)](#)

[\(Amazon\)](#)

0.91" 128x32 OLED Display

Béton3's chassis is designed around a particularly affordable 0.91" OLED screen with 128x32 pixels that has been used in a few keyboards, most notably the [Satisfaction 75](#).

Like the other parts on this list, this display is generally widely available on e-commerce sites. Minor differences such as PCB color are irrelevant, but watch out for cheaper SKUs of the display on AliExpress which do **not** include the PCB.

Buying Options

There are two primary variants of this display, a monochrome **blue** variant, and a monochrome **white** variant. I chose the monochrome white display, but this distinction is up to personal preference.

These little screens can be picked up for as low as \$1.10 on AliExpress. If Prime shipping is more your speed, you can pick up a screen on Amazon for about \$7-8; less if you buy multiple in a pack.

([AliExpress](#))

([Amazon](#))



Figure 3 – An example of the 128x32 OLED display with the PCB.

Cherry MX-mount compatible switches

Béton3's chassis includes 3 square mounting holes compatible with Cherry MX switches and MX-compatible switches (Gateron, Kalih BOX, Zeal, Outemu, etc.) For my initial build, I used an assortment of Gateron Linears I had sitting in a drawer, but you'll probably use your preferred switch. Switches can cost anywhere from pennies per switch up to \$1 per switch or more for some enthusiast switches like Zealios or Holy Pandas.

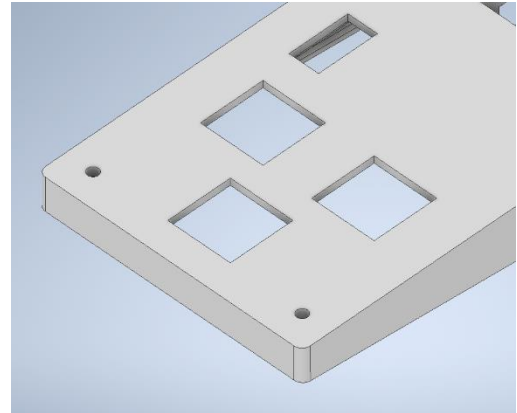


Figure 4 - The three mounting holes for MX-compatible switches on the Béton3 chassis

Buying Options

Switches can be found on an endless number of websites all over the internet. There is a great [switch guide](#) on /r/MechanicalKeyboards that outlines what types of switches are available and some direction on where to buy them. As usual, some of the more common switch types manufactured in China are available on [AliExpress](#) in packs for fairly affordable prices.

I strongly recommend checking out any one of the multiple mechanical keyboard communities online for more info about keyswitches.

Keycaps

For the three macro keys, Béton3 uses a somewhat non-standard layout for keycaps. Keycaps naturally must be MX-compatible cross-stem keycaps. The layout is comprised of **two upper 1.25u** keycaps, and **one lower 1.5u** keycap.

If you are unfamiliar with keycap sizing in terms of “u”s, this is an [example of a standard keyboard layout with labeled sizes](#).

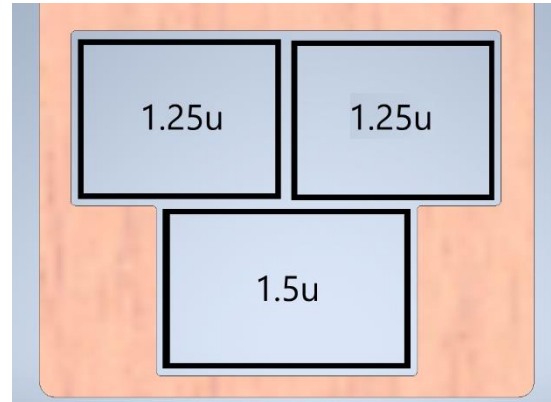


Figure 5 - Keycap size layout

For a standard ANSI keyboard layout, 1.5u is equivalent to the “Tab” key, and 1.25u is generally equivalent to one of the modifier keys (Ctrl, Alt, Command).

Buying Options

While basic 1u (square-shaped) keycaps are commonplace and can be purchased in small batches or one-by-one, 1.25u and 1.5u keycaps are a bit more difficult to find.

For a basic option, there is a basic set of 1.25u and 1.5u DSA PBT keycaps available on [AliExpress](#) for about \$7.

For something more interesting, you may be able to find “artisan” keycaps on sites such as Etsy or eBay in the 1.25u and 1.5u sizes.

Finally, if you have spare keycaps lying around the house, you may be able to use keycaps from your existing set such as “Tab”, “Ctrl”, “Alt”, “|\\”, etc.

Please note: Although aesthetically awkward, standard 1u keycaps **will** fit, and are completely functional despite the gaps.