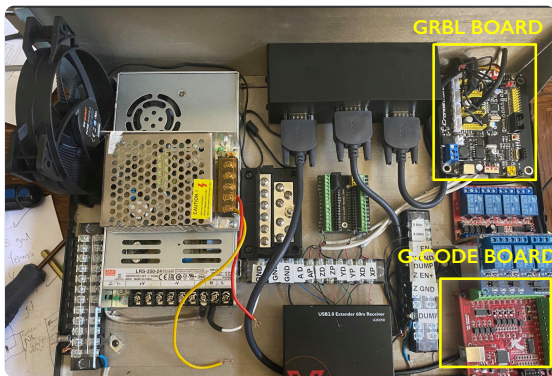


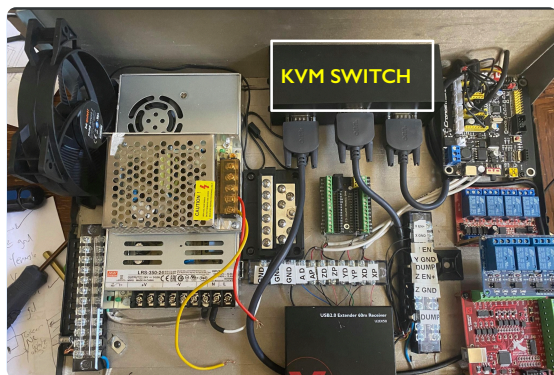
The problem is that Mach3 is designed for a spindle router and even tho yes you can set it up to run a laser, there are about a million hoops you have to jump thru to get mach3 to run correctly. The other problem is that you lose the ability to use laser software cad programs like Lightburn, and you have to run things in a G-code based cad system giving up almost if not all of the features offered by laser specific cad programs.

My solution...

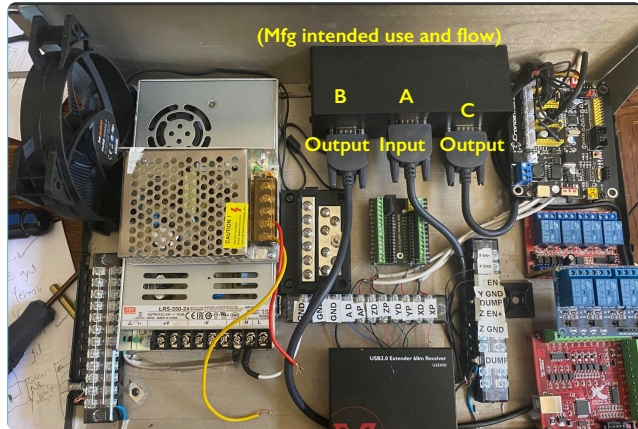
I set up a dual control system that operates on a switch. There are so many complicated ways to use mach3/lasers and you need so many work arounds to "trick" mach3 to run a laser... that i decided best not to "trick" the system. But instead, just dont use the system at all. I have wired my GRBL board in conjunction with my mach 3 board. See below:



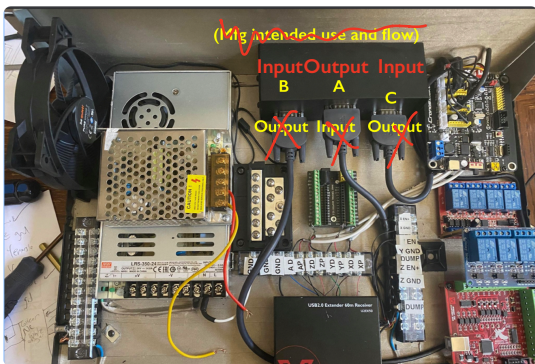
But how? How can you actually make both boards work in the same system? Well they do not operate synchronous. They are wired to work independently of each other. This is achieved by this box. I used rather old, probably forgotten technology to make this work. Do you remember what a KVM Switch was and what they were used for? See Below:



Remember a KVM switch is only a data transfer unit. It sends data from point A, to point B. If you need the data to go to point C, then you flip the switch. It is very old technology that we don't even use anymore. Its an old pc monitor switching device. The ones that you can swap your screens from one monitor to another. Uses the 15 pin VGA connectors. So in this case, I used the box in reverse. Typically your center VGA cable is your static cable, and it serves as the cable that is receiving the signal and splitting it to A and B. See Below:

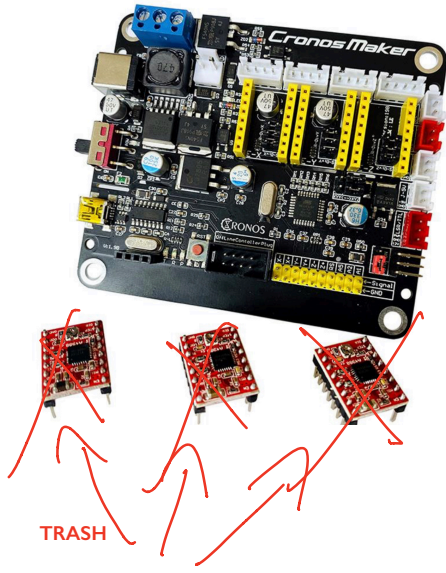


Since there are no rules that force you to use the switch in this manner, I simply reversed the flow, as Data cares not the direction it is sent or travels, its only purpose is to get to its next location to offload it's packets. See Below:

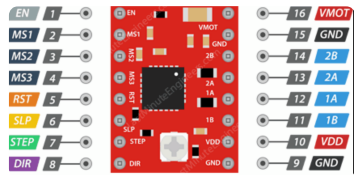


Ok, so now this switch is capable of controlling 15 separate lines of data in a shielded cable. But then you have to take into consideration that my spindle router CNC is using stepper motors that each are using their own 48v power supply. No way a GRBL stepper driver chip can run that much voltage. Solution? Remove the driver chips and throw them in the trash.

**DRIVERx3** Stepper Motor Drive: A4988



So let me explain. My cnc frame has stepper motors that require 48v to operate optimally. When I looked at the pin outs for the stepper driver chips, I found some similarities with my other high voltage drivers. After some testing, this is how my GRBL board controls my 48v steppers. See below:



Example of Z-Axis wiring

