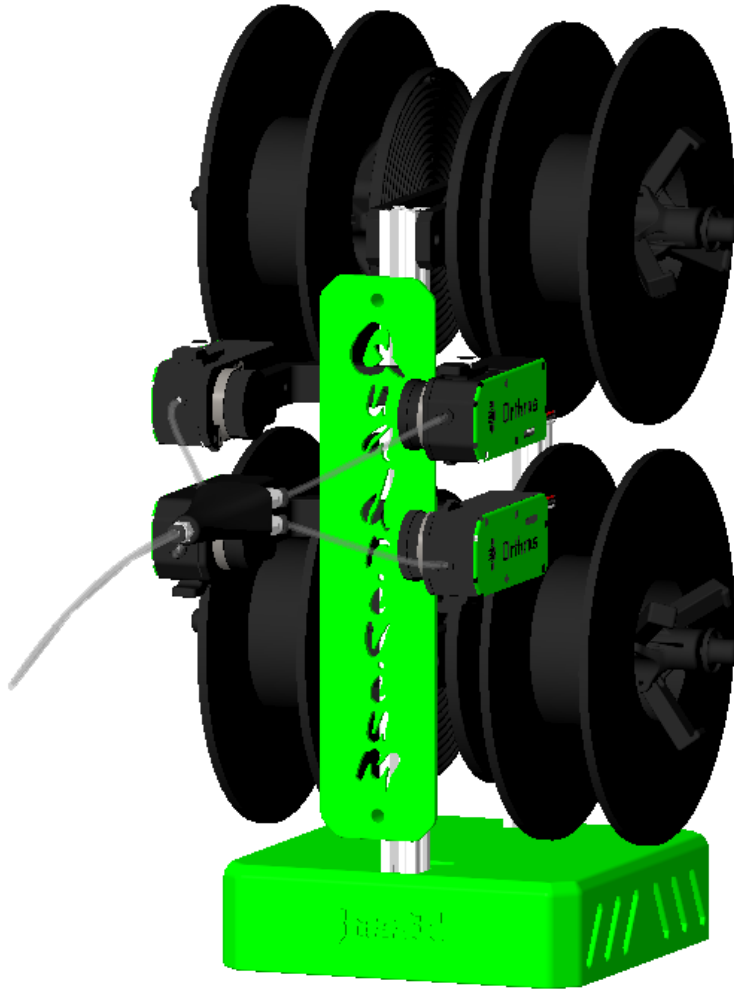


Quadrivium v2

Assembly Instructions

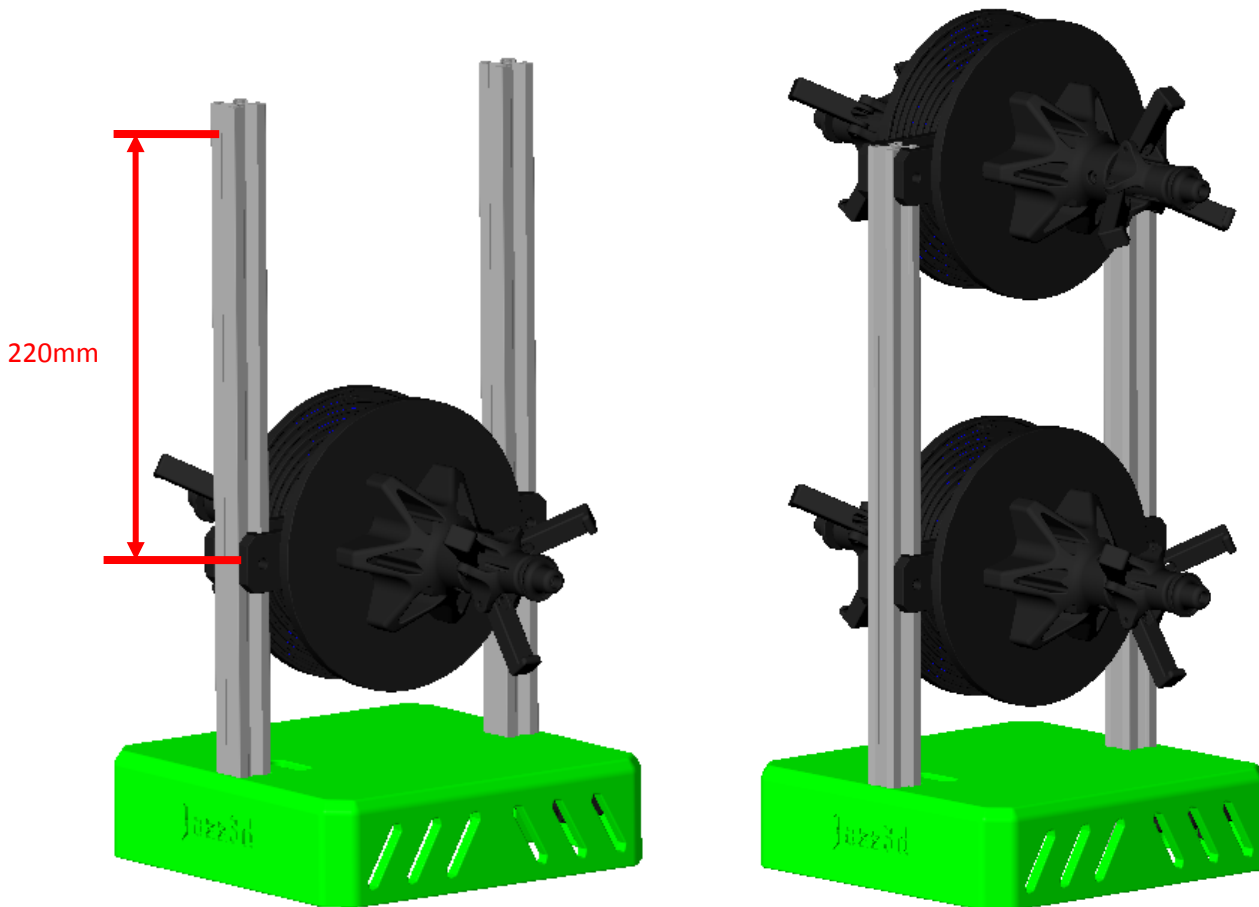


WARNING: DO NOT USE ANY LOCKTITE ON ANY PARTS!

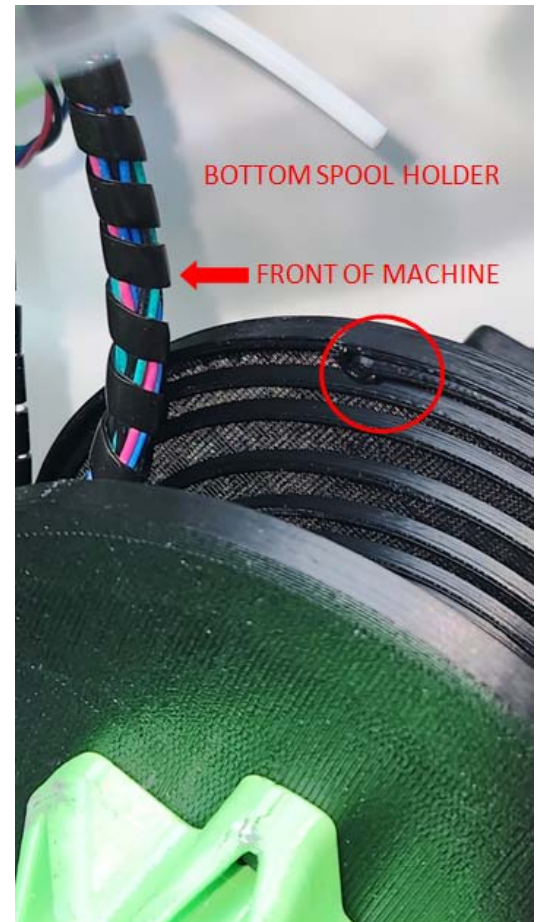
1. Slide the Spool Holder assembly labeled "Front Bottom" on to the extrusions as shown, making sure the end labeled "Front Bottom" is facing forward. Align the Spool Holder assembly approximately 220mm from the top of the extrusions.

Slide the second Spool Holder assembly labeled "Front Top" on to the extrusions as shown, making sure the end labeled "Front Top" is facing forward. Align the Spool Holder assembly approximately with the top of the extrusions.

Loosen the screws on the brackets so the T-nuts can spin into the extrusion slots and tighten the screws down to the extrusions. DO NOT OVERTIGHTEN.

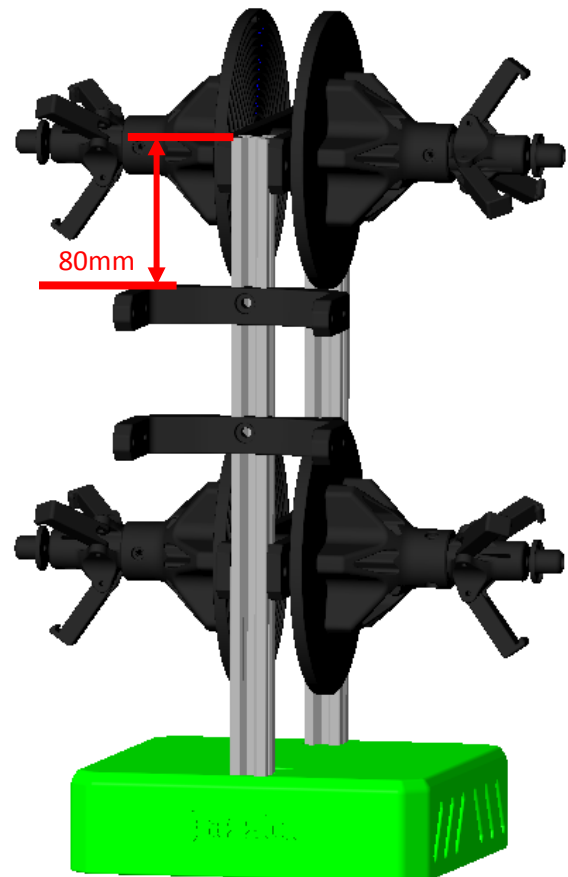
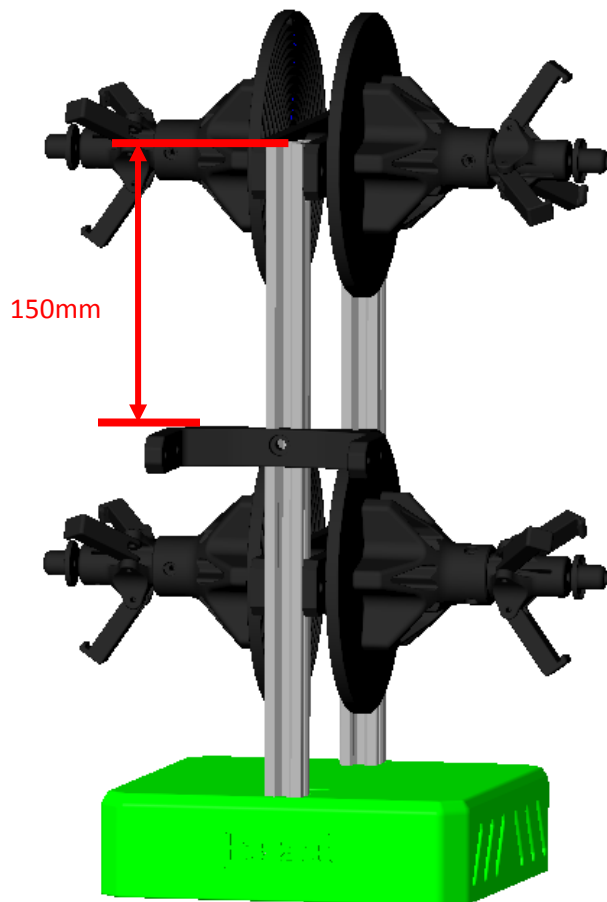


When assembled, the ends of the rewind springs should be facing in the directions shown. If they do not match these photos, reinstall them correctly. The springs should coil inward when filament is fed into the extruder. If they coil outward, damage can be caused to the spring.

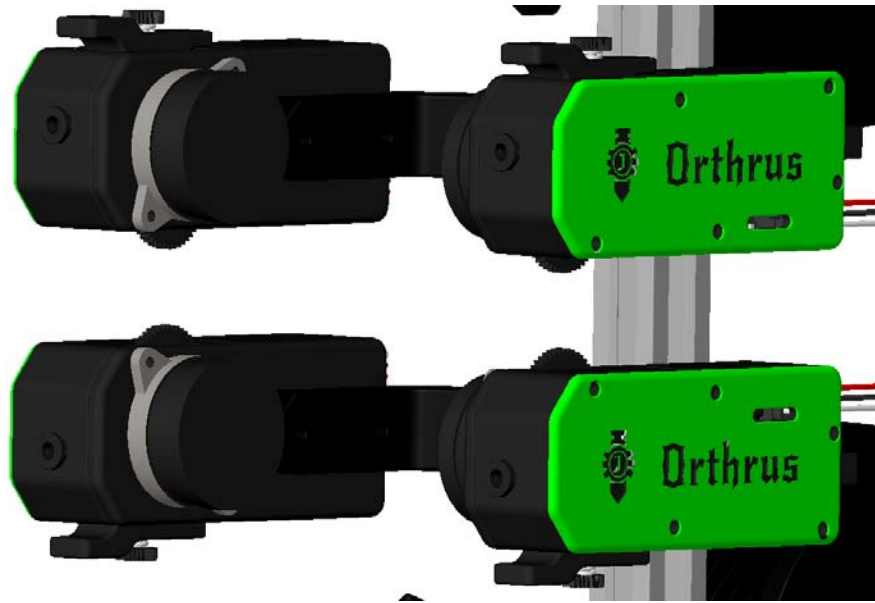


2. Assemble one Extruder Mount to the front extrusion. Position the mount approximately 150mm from the top of the extrusion. Loosen the screw so the T-nut can spin into the extrusion slot and tighten the screw down to the extrusion. **DO NOT OVERTIGHTEN.**

Repeat this step for the other Extruder Mount assembly. Position the mount approximately 80mm from the top of the extrusion.



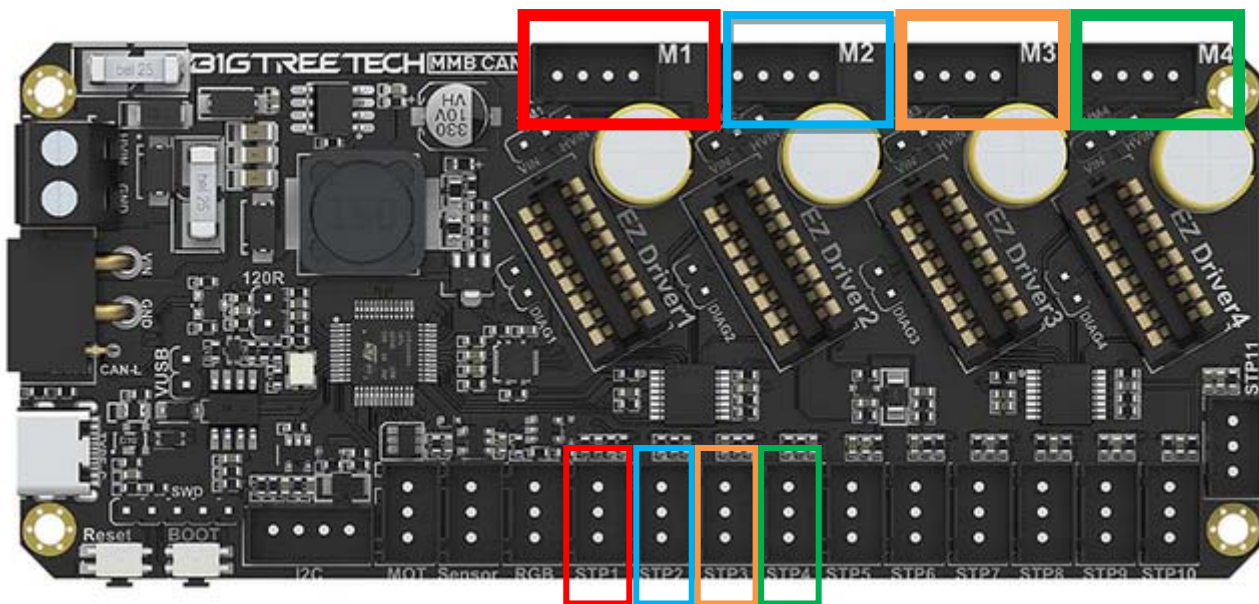
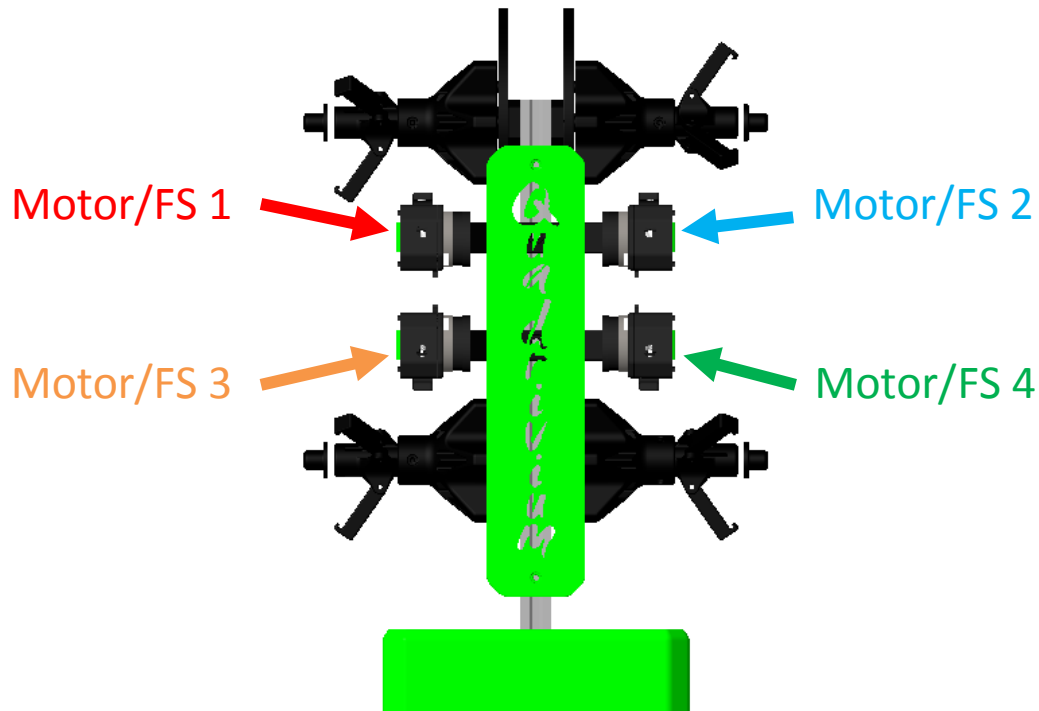
3. Mount the extruders to the extruder mounts using the M3 screws in the back of the extruders. Make sure the tension arms face outward as shown.



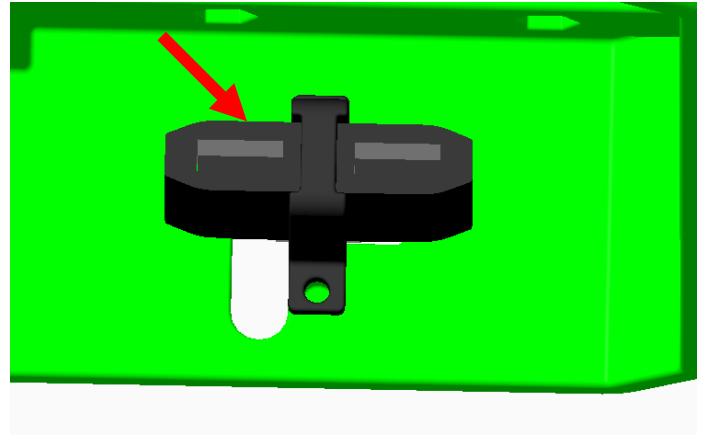
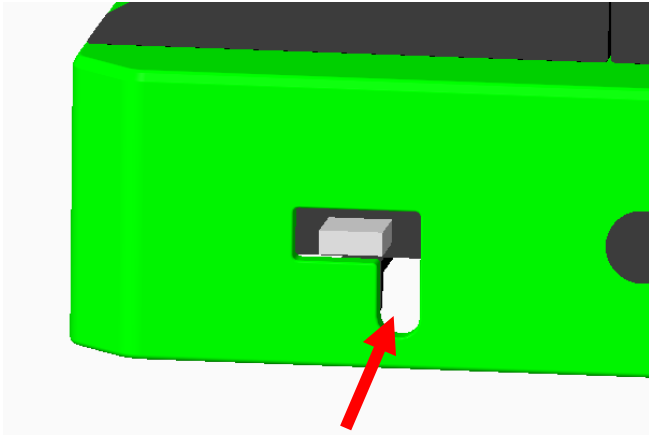
4. Mount the Name Plate in the approximate location as shown with the provided screws and T-nuts.



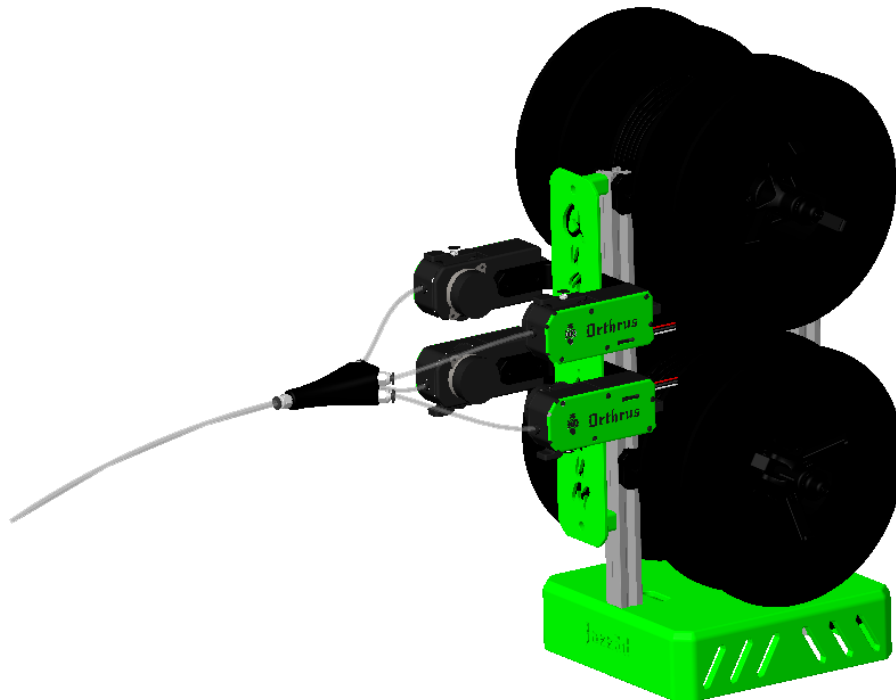
5. Run the motor/filament sensor wires down the back side of the extrusion and thru the slot in the top of the Base. Slide the braided sleeves over the set of wires for each side.
6. Connect the motors and filament sensors to the MCU.
- Motor/Filament Sensor 1 -> M1 and STP1 sockets
 - Motor/Filament Sensor 2 -> M2 and STP2 sockets
 - Motor/Filament Sensor 3 -> M3 and STP3 sockets
 - Motor/Filament Sensor 4 -> M4 and STP4 sockets



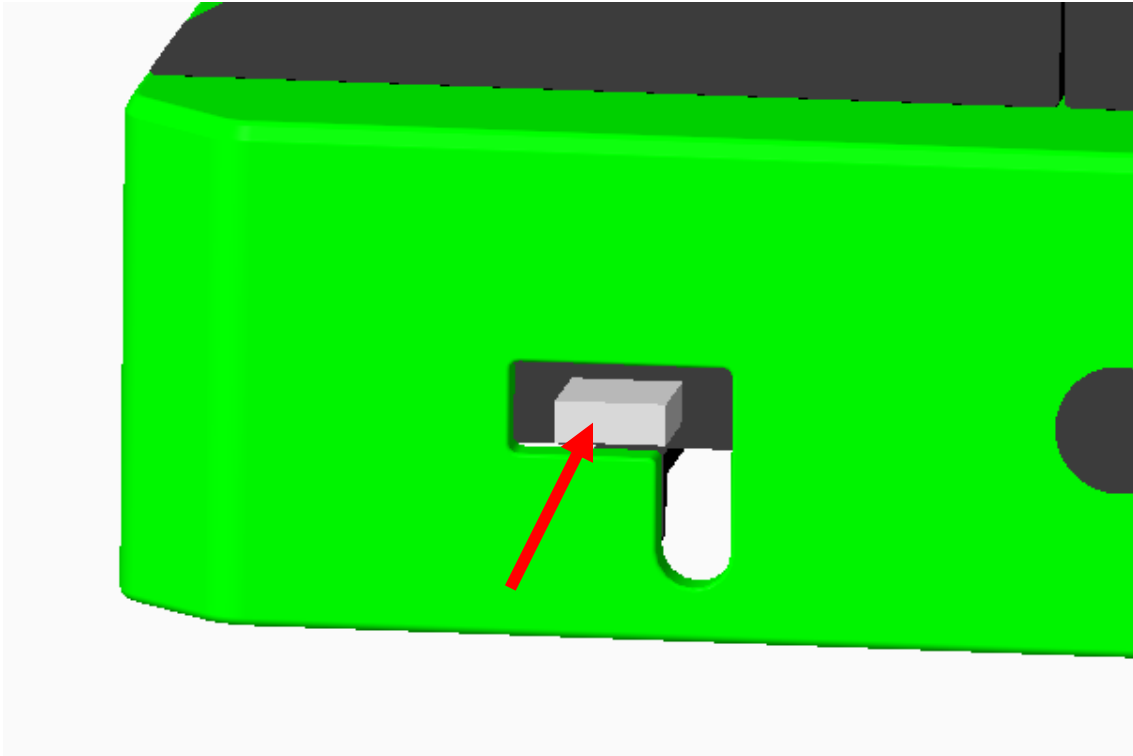
7. Slide the USB cable from the printer's MCU thru this slot and plug it into the open socket on the USB splitter.



8. Insert the four short PTFE tubes in the Splitter in to each extruder. The long PTFE tube in the Splitter can be cut down to the length you need.



9. Install the included USB extension cable on to the USB splitter, and plug the other end into your Klipper host machine.



10. If running multiple Quadrivium's on the same printer, plug the first Quadrivium in to the second Quadrivium repeating Step 7. Then repeat Step 9 from the last Quadrivium in the series.

You're assembly is now complete!!! Let's move on to the config file.

Klipper Setup

1. Download the Quadrivium.cfg file from our website and upload it to Klipper:

<https://jazz3d.io/downloads/>

If using multiple Quadriviums, download the sequential Quadrivium files as needed (i.e. Quadrivium1.cfg, Quadrivium2.cfg, etc.)

Upload the quadrivium-v2.cfg, filament_switch_macros.cfg, and infinite_spool_macros.cfg files to your printer via SSH or web interface.

2. Open the config file(s) and type in the Serial ID found on the sticker on the bottom of the base in the location here. This will be needed for each Quadrivium and config combination.

Also, select which mode you want to use (**FILAMENT SWITCHING** or **INFINITE SPOOL**) by uncommenting and commenting out the appropriate [include] files.

```
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17
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19
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21
22 ### THIS CONFIG FILE IS FOR THE Jazz3d Inc. QUADRIVIUM MMU ###
23
24 # This file contains common pin mappings for the BIGTREETECH MMBCan
25 # Canbus board. To use this config, the firmware should be compiled for the
26 # STM32G0B1 with "8 MHz crystal" and "USB (on PA11/PA12)" or "CAN bus (on PB8/PB1)".
27 # The "MMB Can" micro-controller will be used to control the components on the nozzle.
28
29 # See docs/Config_Reference.md for a description of parameters.
30 [include filament_switch_macros.cfg]
31 #[include infinite_spool_macros.cfg]
32
33 [delayed_gcode startup]
34 initial_duration: 10.0
35 gcode:
36     SET_FILAMENT_SENSOR SENSOR=filament_1 ENABLE=1
37     SET_FILAMENT_SENSOR SENSOR=filament_2 ENABLE=1
38     SET_FILAMENT_SENSOR SENSOR=filament_3 ENABLE=1
39     SET_FILAMENT_SENSOR SENSOR=filament_4 ENABLE=1
40
41 [force_move]
42 enable_force_move: True
43
44 [mcu MMB]
45 serial:
46 baud: 250000
47
48 # EZ Driver1
49 [extruder_stepper extruder1]
50 extruder: #extruder
51 step_pin: MMB:PB15
52 dir_pin: MMB:PB14
53 enable_pin: !MMB:PAB # V1.0
54 microsteps: 16
55 rotation_distance: 6.25 #8.935
56 pressure_advance_smooth_time: 0.02
```

3. In the printer.cfg file, add [Include quadrivium-v2.cfg] into the file. Do this for each quadrivium-v2.cfg file that you require. Restart the firmware and confirm Klipper boots up correctly.
4. Disable any filament runout sensors you have on your printer in your printer.cfg. The Quadrivium has its own filament runout sensors.

Slicer Setup

Slicers may vary on how you need to set them up for switching materials. Follow this format used for Ideamaker on other slicers and make necessary adjustments.

Ideamaker > Print Profile > Gcode Tab > Extruder Switch Gcode Tab

Add this into the gcode section:

```
FILAMENT_UNLOAD  
T{new_extruder}  
FILAMENT_LOAD
```

You will also need to dial in purge tower setting for your hotend.

Calibration

NOTE: The PTFE tube from the Splitter to the printer's extruder can be cut to a shorter length if desired.

1. Load filament until a little extrudes out of the hotend. Now retract the filament until the end of the filament is sticking out front the of the Quadrivium extruder about 20-25mm. Make note of the total retracted distance.

2. Open the filament_switch_macros.cfg file and scroll to the bottom to the MACROS sections. Follow the instructions in the notes on each line of the macros.

3. When printing, if the Quadrivium is pushing too little or too much filament compared to your printer's extruder, adjust the ROTATION_DISTANCE for the Quadrivium motors until it is pushing the filament just the right amount.

A good test to tell whether the Quadrivium extruder is pushing the correct amount of filament compared to your printer's extruder is to release the pressure lever on the Quadrivium extruder during a print. If the filament is jumps inward, the extruder is pushing too little. If the filament jumps outward, the extruder is pushing too much.

4. Follow all the notes in the filament_switch_macros.cfg file for each line/section to dial in the settings for your specific setup.