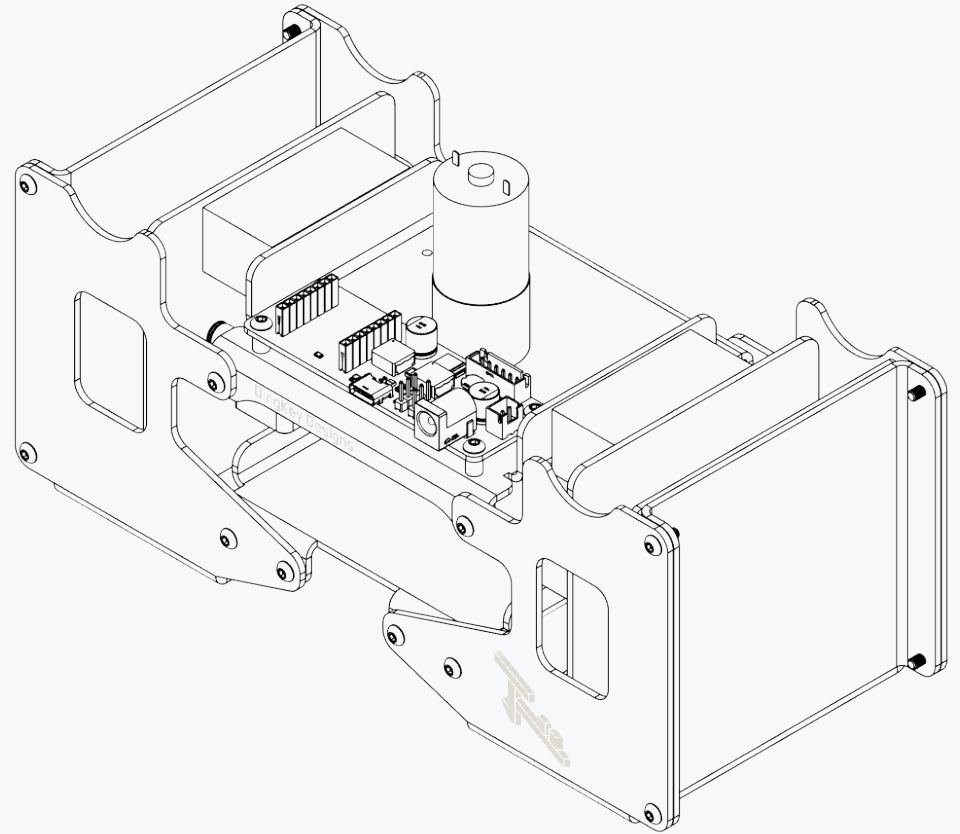
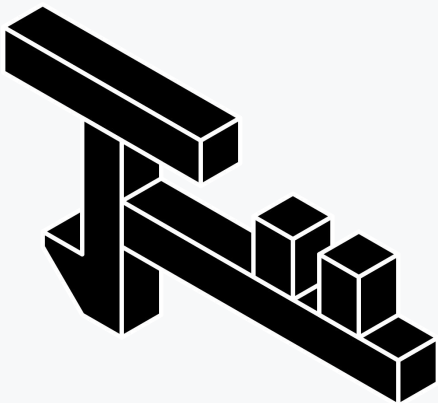


DingKey Designs



BREAK-IN MACHINE MKII PRODUCT MANUAL



Revision 02-17-2024

Thank you for your recent purchase of a DingKey Designs product!

Please do not hesitate to reach out to us via email, Discord, Etsy, or inbox for any issues or suggestions you would like to report to us to help improve your user experience!

Please note this manual is a work-in-progress and may be updated to reflect product changes as they are rolled out.

Please take special care to read this manual to ensure proper operation of the machine and to reduce chance of parts breakage.

Feel free to discuss with other product owners in our [Discord](#) for other helpful tips and suggestions.

DingKey Designs Team

INTRODUCTION

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STANDARD OPERATION

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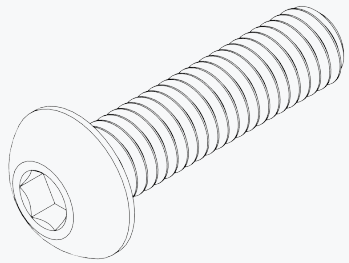
-

NON-STANDARD
OPERATION

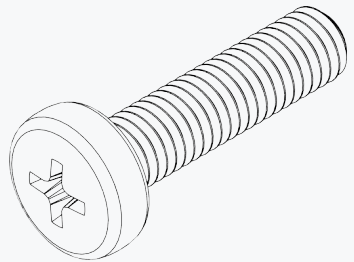
19

-

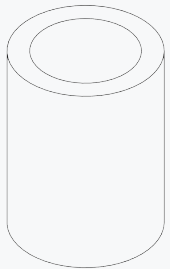
HARDWARE REFERENCE



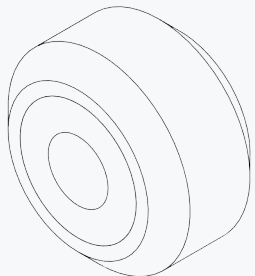
Button Head Hex Screw
Metric M3 fastener, comes in lengths of 8mm, 12mm, and 22mm



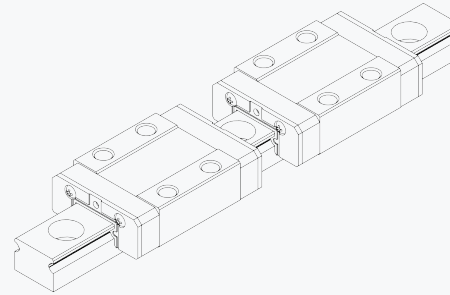
Phillips Hex Screw
Metric M5 fastener, only used for **wheel cam assembly**



Nylon Spacer
Non-conductive nylon spacer used between **power control board** and **motor mount**

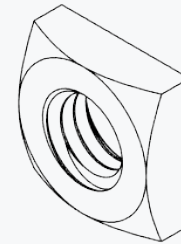


Wheel
Standard POM V-Wheel, used on **wheel cam assembly**

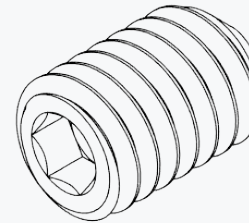


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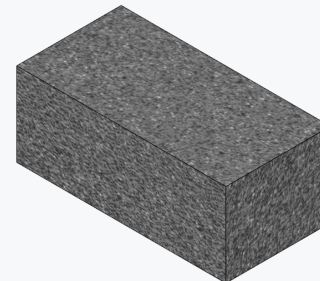
Linear Rail Assembly
Standard MGN9 Linear Rail with slider blocks, 95mm length



Square Nut
Metric fastener used to adjust positioning of **piston plate**

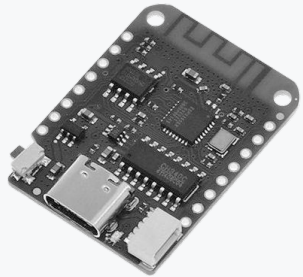


Set Screw
Metric fastener used to adjust positioning of **piston plate**



Dampening Foam
Polyurethane foam used to dampen vibrations and sound

HARDWARE REFERENCE



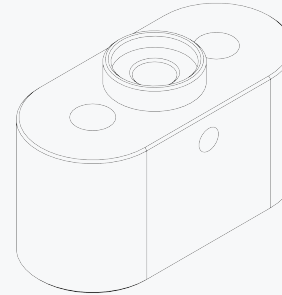
Wemos D1 MCU
ESP8266-based IOT MCU
board



OLED Screen
Optional module which can be
installed atop the **Wemos D1**
MCU

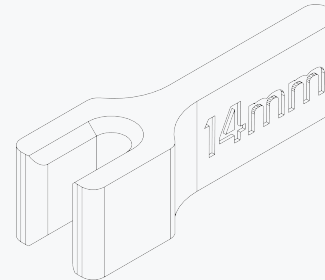


T-Handle Hex Key
(deprecated)
2mm Hex Key used to adjust
positioning of **piston plate**



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Wheel Cam
CNC machined
component, attaches to
motor



Calibration Tool
3D printed plastic
calibration tool used to
set standard switch
actuation

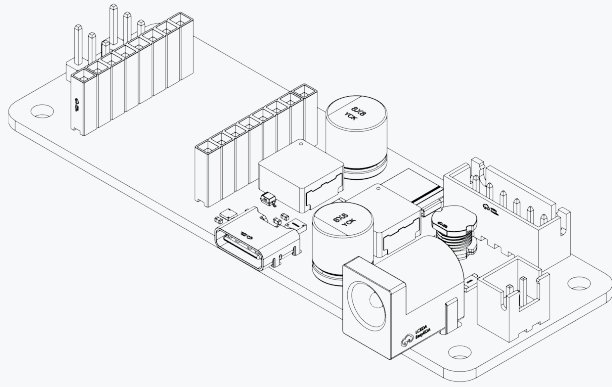
Hex Screwdriver
2mm Hex Screwdriver
used to adjust positioning
of **piston plate**

DC Power Adapter
12V 2A DC Power
Adapter (US Plug)

Used for DC power
option for PCB

HARDWARE REFERENCE

DINGKEYDESIGNS.COM

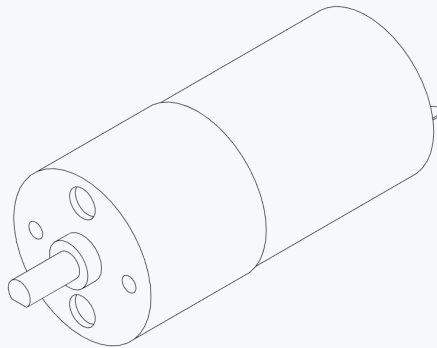


Power Control Board

Assembled PCB with components

Includes **WEMOS D1**

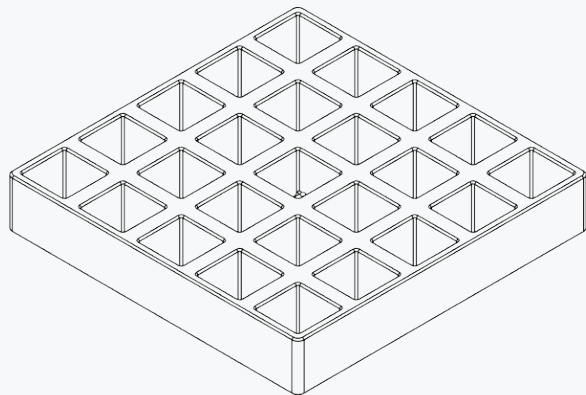
Optional **OLED Screen**



Motor

12V/170rpm DC Motor with integrated encoder module

Note new motor voltage is different from previous gens



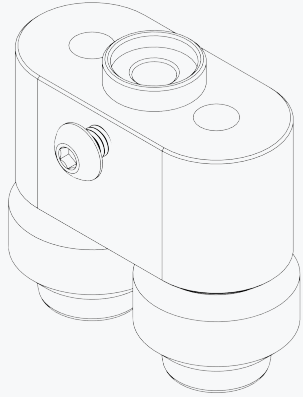
Switch Carriage

3D Printed Plastic Switch Carriage

Total Capacity: 50

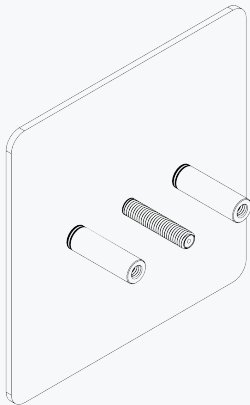
HARDWARE REFERENCE

DINGKEYDESIGNS.COM



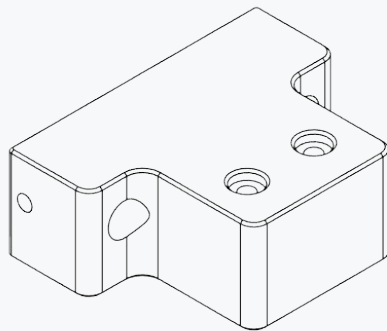
Wheel Cam Assembly

Comprised of **Wheel Cam**, **Wheel**, **Button Head Hex Screw**, and **Phillips Hex Screw**



Piston Plate

Sheet metal component, with two smooth standoffs, and one threaded standoff

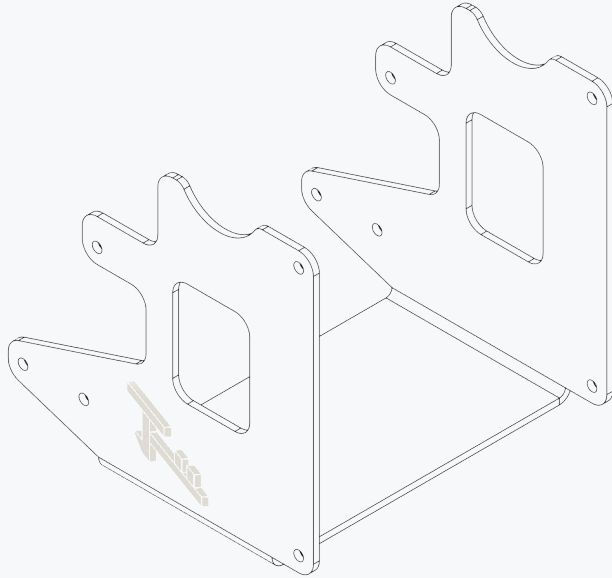


Piston Block

CNC machined component, has holes to fit standoffs of **piston plate** and allows for actuation distance adjustment

HARDWARE REFERENCE

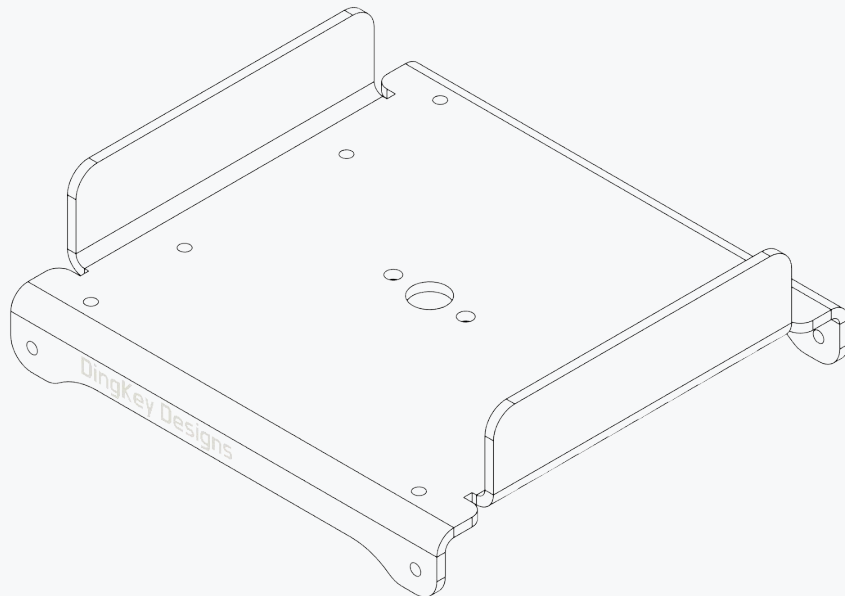
DINGKEYDESIGNS.COM



Main Body

Sheet metal component, featuring laser etched logo on one side face.

No tapped holes



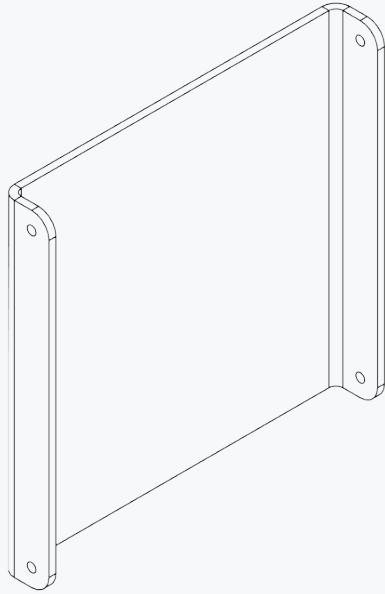
Motor Mount

Sheet metal component, features laser etched logo text on one side face

8 *tapped* holes for **power control board** mounting.

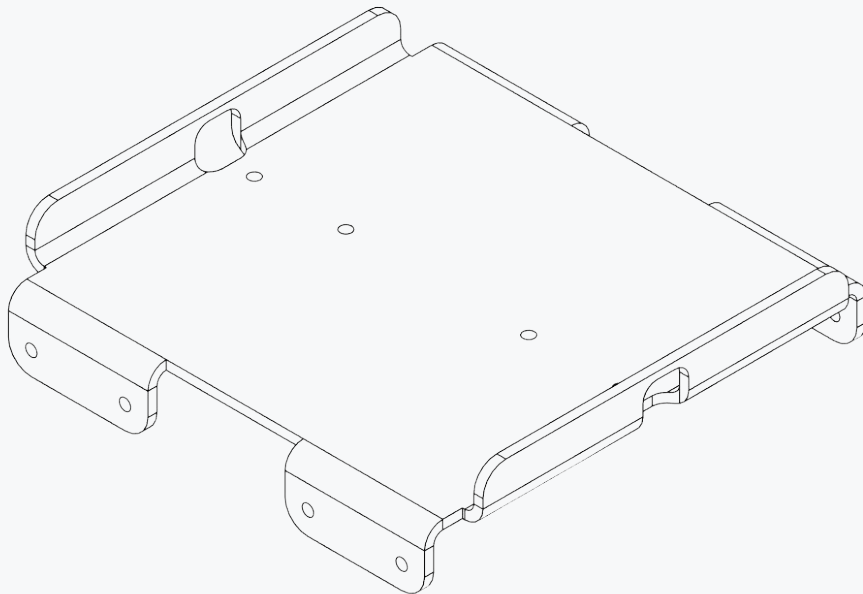
HARDWARE REFERENCE

DINGKEYDESIGNS.COM



Back Plate

Sheet metal component with 4 *tapped* holes, attaches to **main body**.



Rail Mount

Sheet metal component where **linear rail assembly** attaches to, has 8 *tapped* holes.

Kit Purchase Option:

Full assembly instructions coming soon!

Pre-assembled Machine:

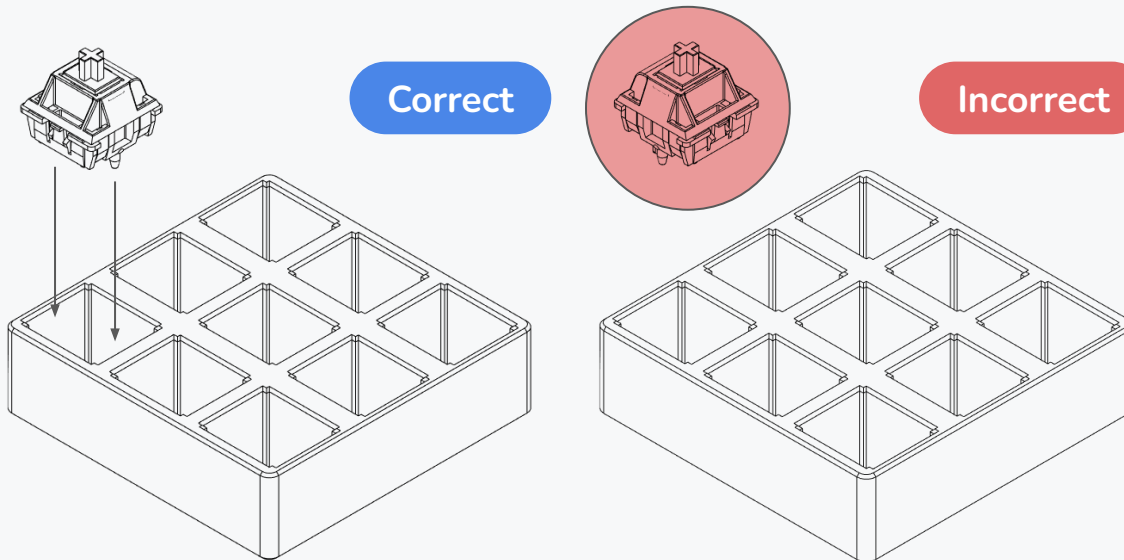
Proceed to next pages for tuning and first steps

Switch Installation

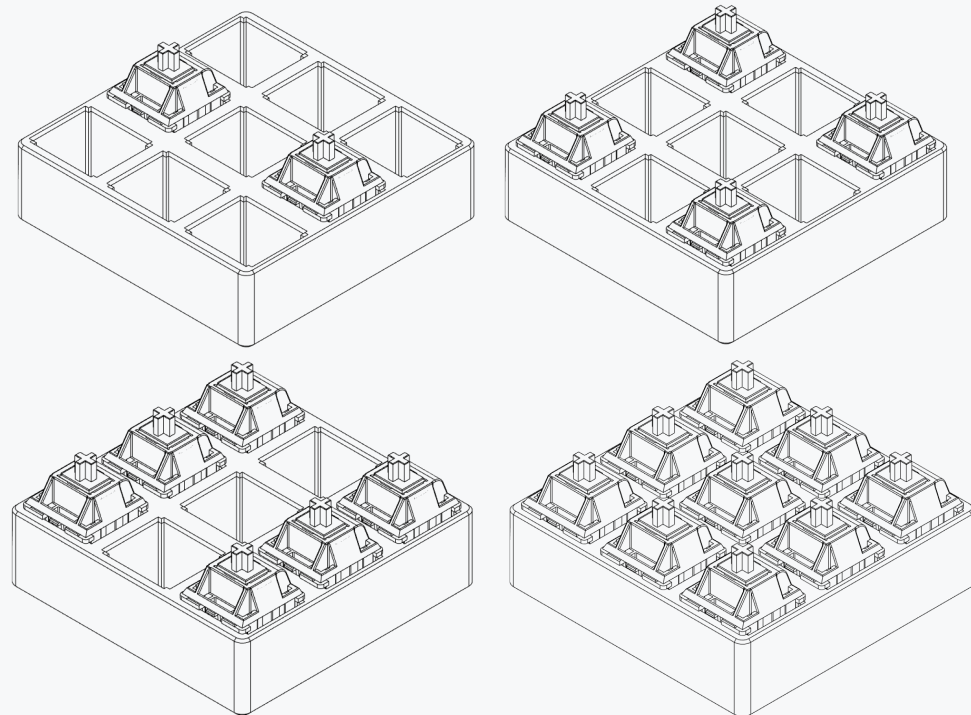
This page demonstrates example orientations and ways to load the **Switch Carriages**. Note the orientation of the switches in relation to the **rectangular** cutout. (North/South facing)

Switches are friction fit into the 3D printed plastic.

If using less than full capacity, take note of the example configurations pictured to the right.



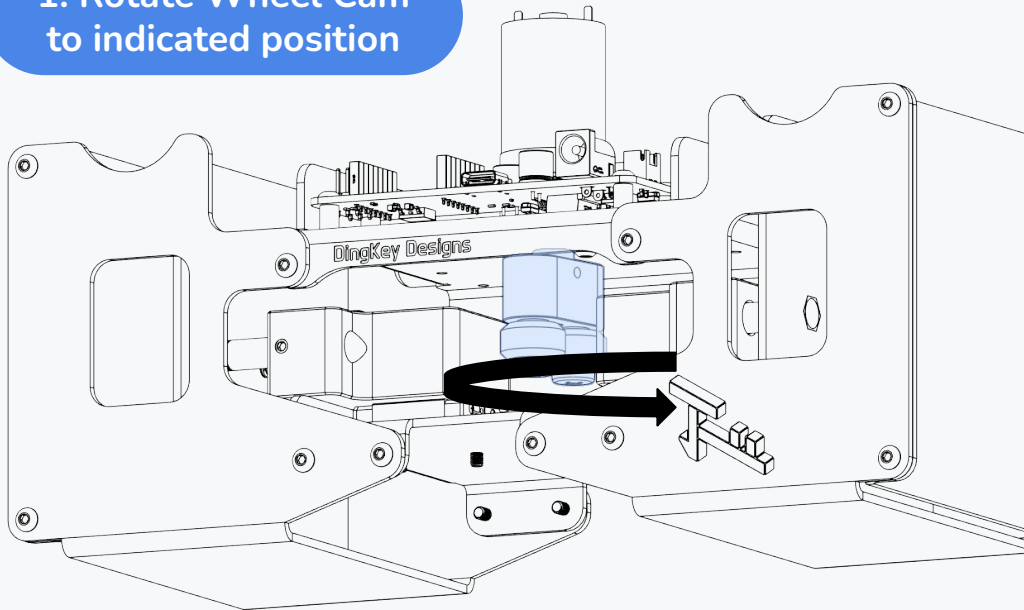
Example Configurations



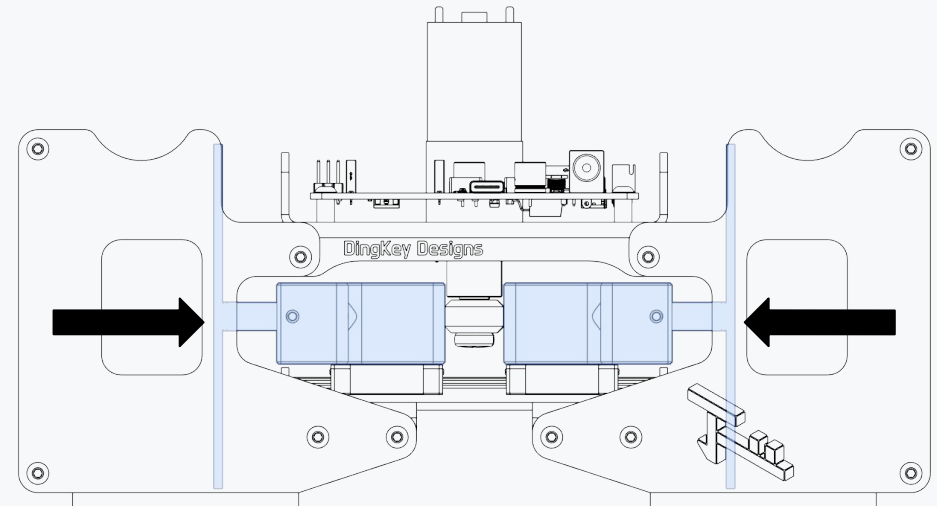
Piston Adjustment

Please refer to the previous page for carriage switch installation before performing the steps listed below.

1. Rotate Wheel Cam to indicated position

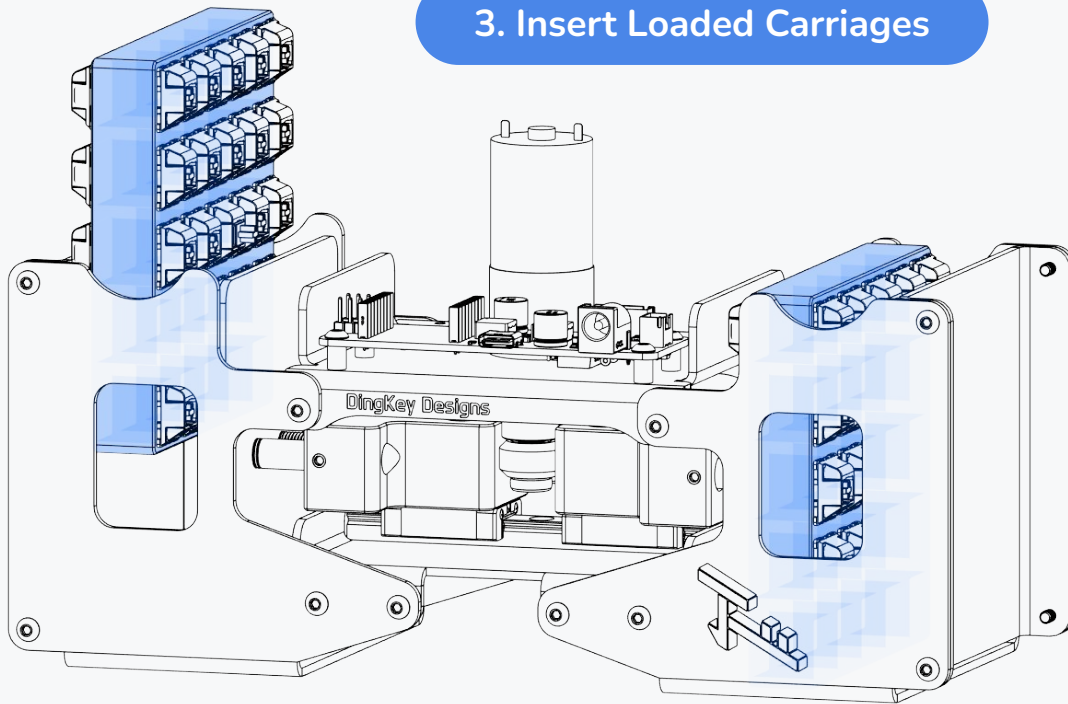


2. Push pistons until making full contact with wheel cam

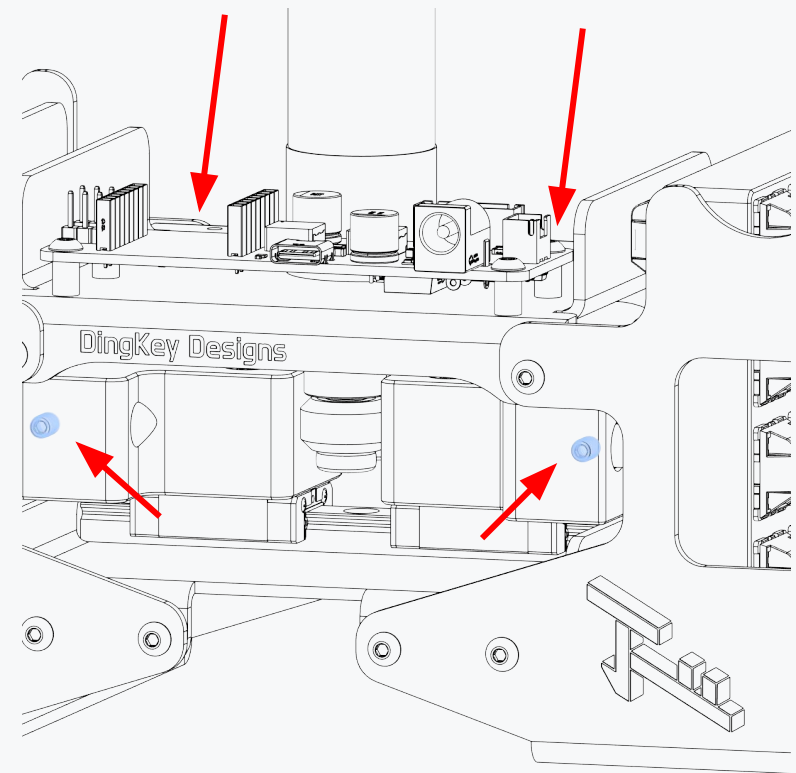


Piston Adjustment

3. Insert Loaded Carriages



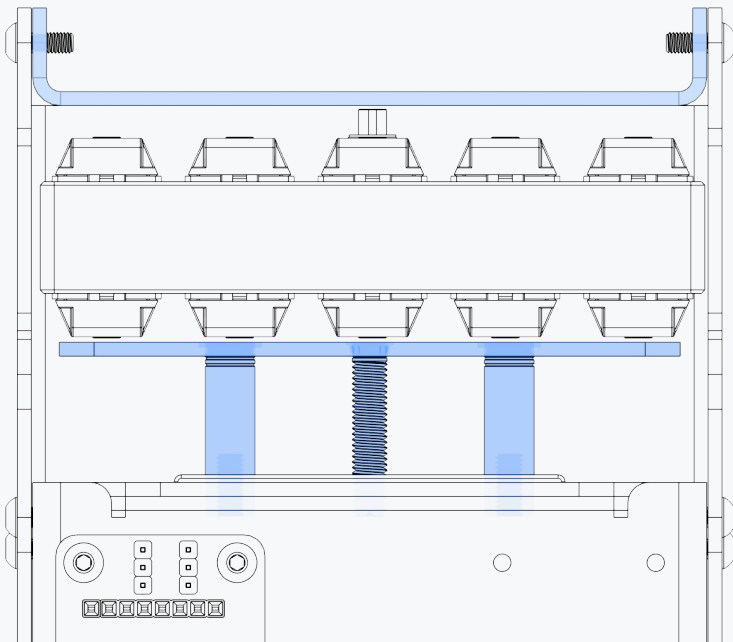
4. Locate set screws on both sides and rear of piston blocks



Piston Adjustment

5. Check for parallel alignment between Piston Plate and Back Plate

If correct, proceed to slide 16



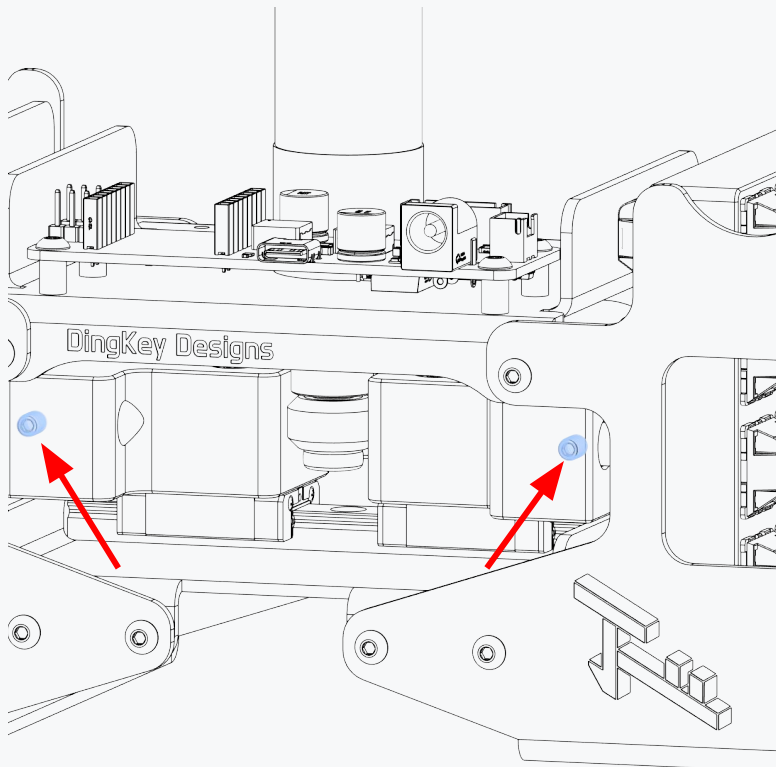
Correct



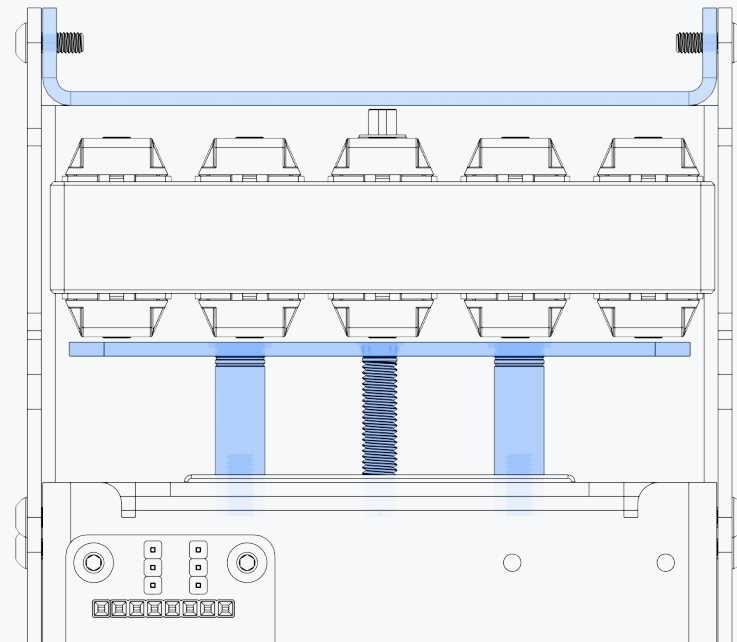
Requires Adjustment

Piston Adjustment

6. If needed, loosen set screws and tilt piston as needed

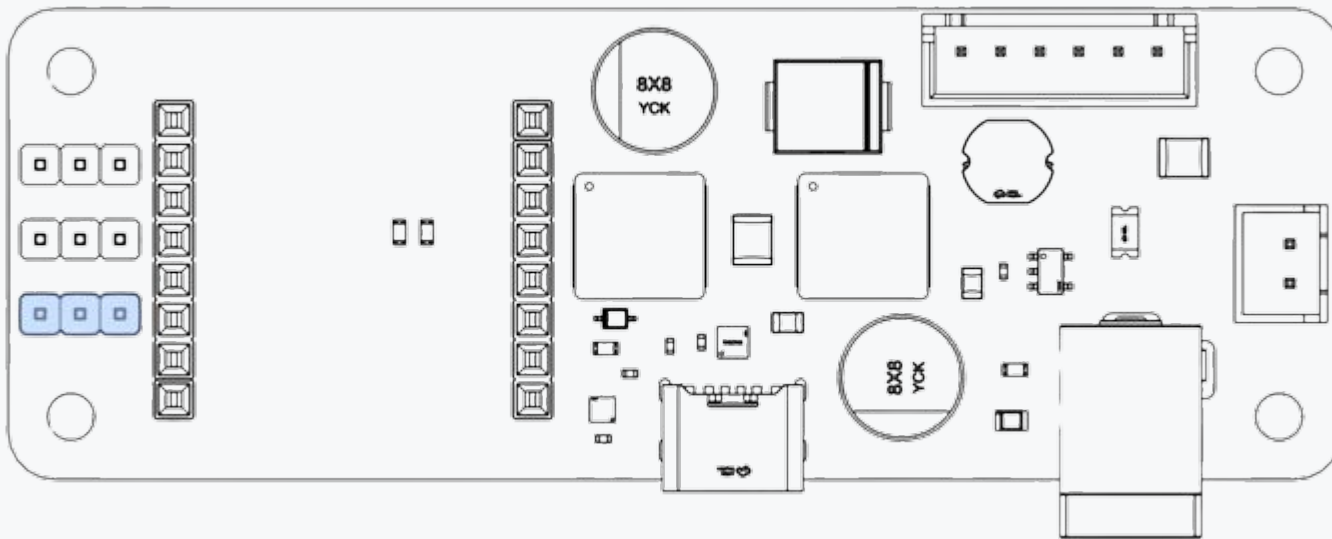


7. After adjustment, retighten screws with provided T-handle tool



Correct

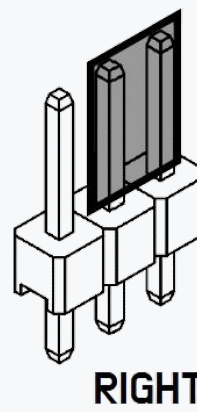
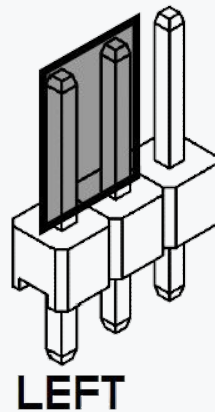
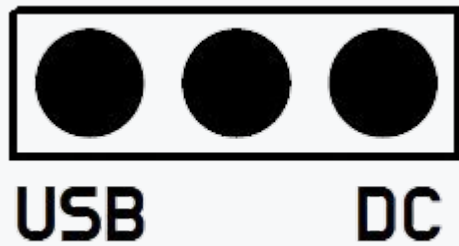
Powering Up (Power Source Selection)



Locate the bottom most jumper on the Control Board

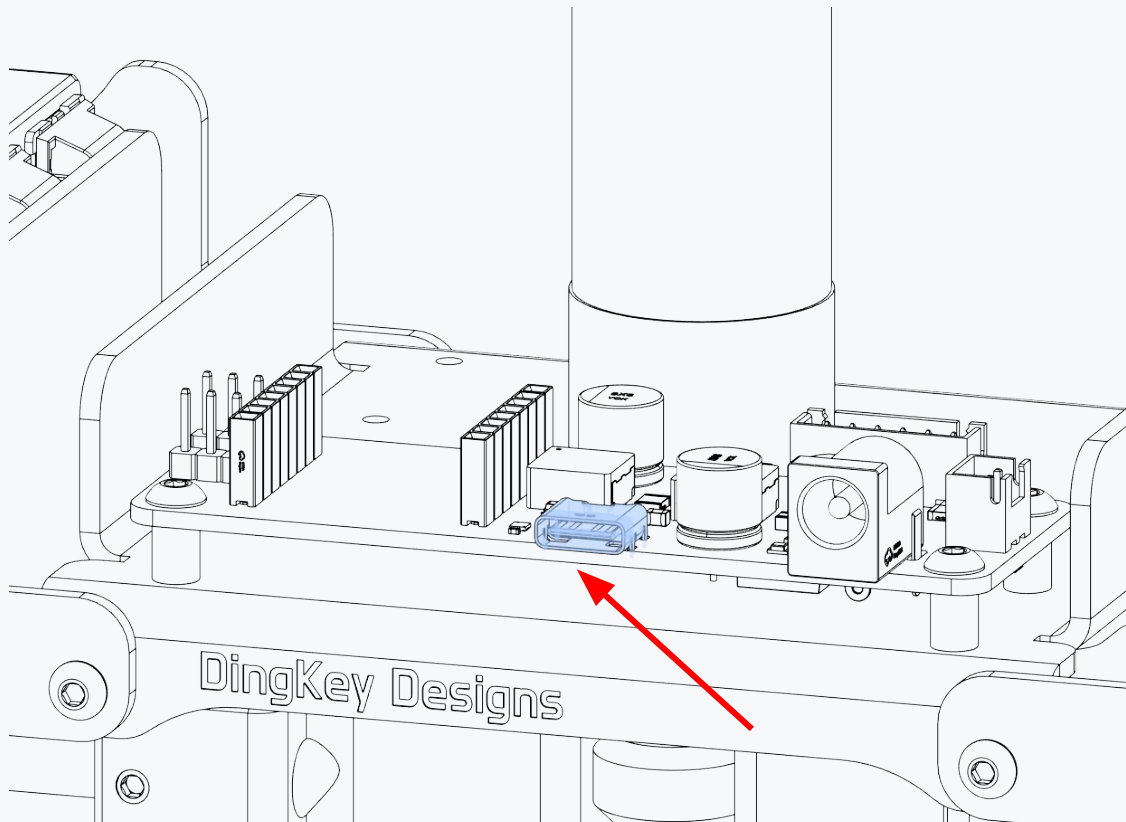
Set jumper position based on power source

Default jumper position is set to USB source



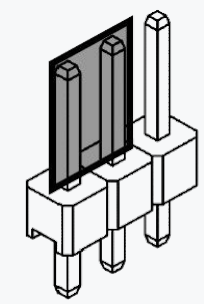
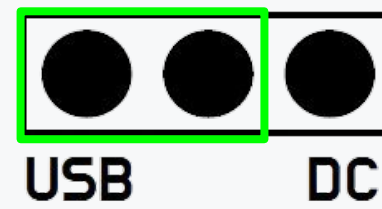
Powering Up (USB Source)

Please make sure you have completed the **Piston Adjustment** section before the following steps.



Locate the USB C port in the middle of the power control board

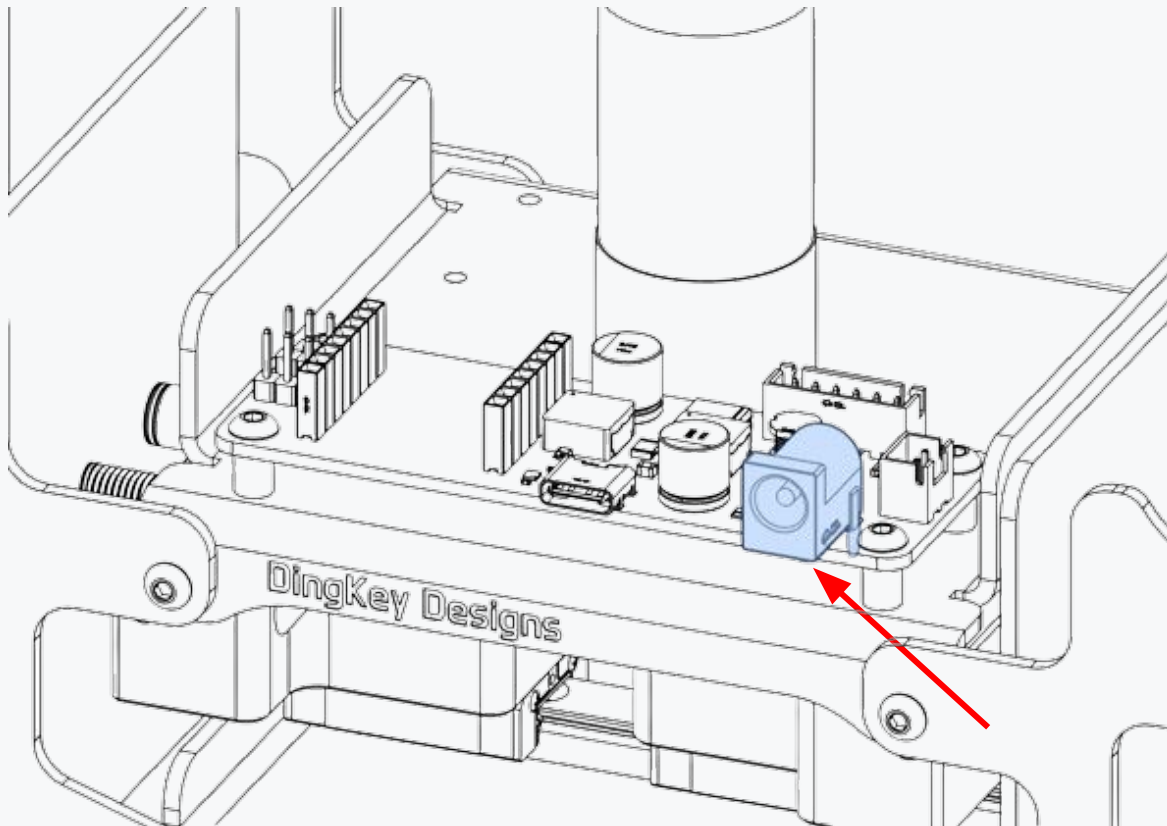
Attach 3A capable USB C cord/brick to THIS PORT ONLY



Jumper diagram

Powering Up (DC Source)

Please make sure you have completed the **Piston Adjustment** section before the following steps.

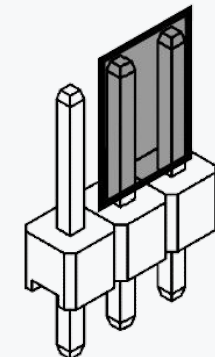
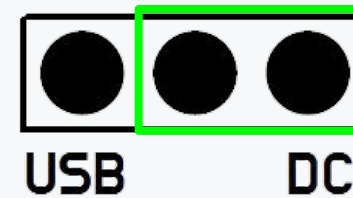


Locate the DC Barrel Jack near the right side of the board

Barrel Jack Specs:
5.5mm x 2.5mm Socket



DOUBLE CHECK POLARITY
BEFORE PLUGGING IN



Advanced Control

Each DingKey Designs MK2 Break-in Machine is equipped with a Wemos D1 MCU which is able to create its own WiFi access point for ease of remote control and operation

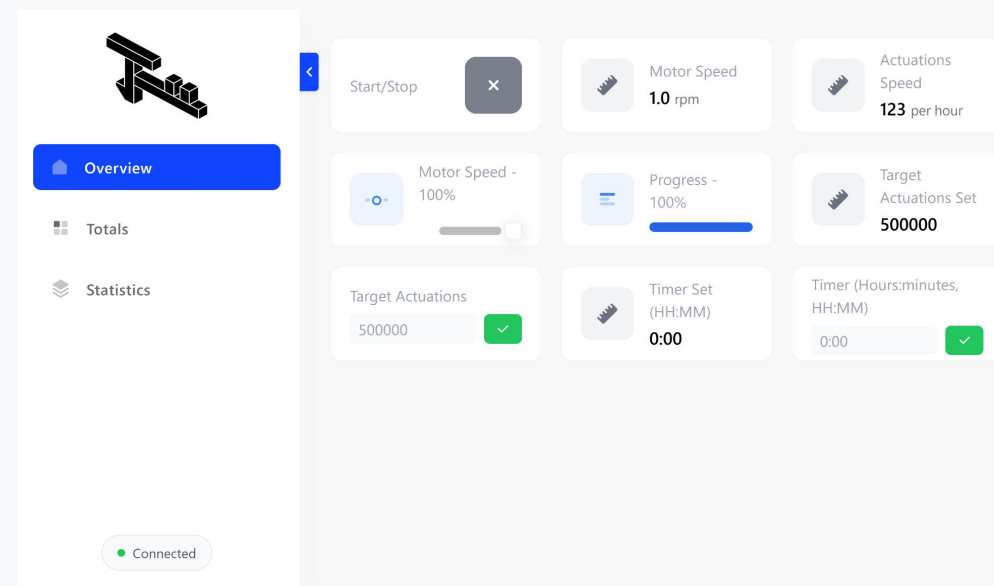
Through our web interface, you are able to start/stop the machine, view machine motor RPM and actuation count, as well as set target actuation and timer function for runtime.

1. Connect to DingKeyWiFi-#### signal on device of choice
 - a. The 4 digits will increment as you power up more than 1 machine - i.e 0001, 0002
 - b. Password is **keyboard**
2. Type in **10.10.10.1** in your browser URL
 - a. You should see a screen similar to this:
 - b. Works on desktop and mobile

If equipped with OLED screen:

The WiFi name and IP will be displayed upon power up.

The screen will also display stats at-a-glance such as RPM and actuations.

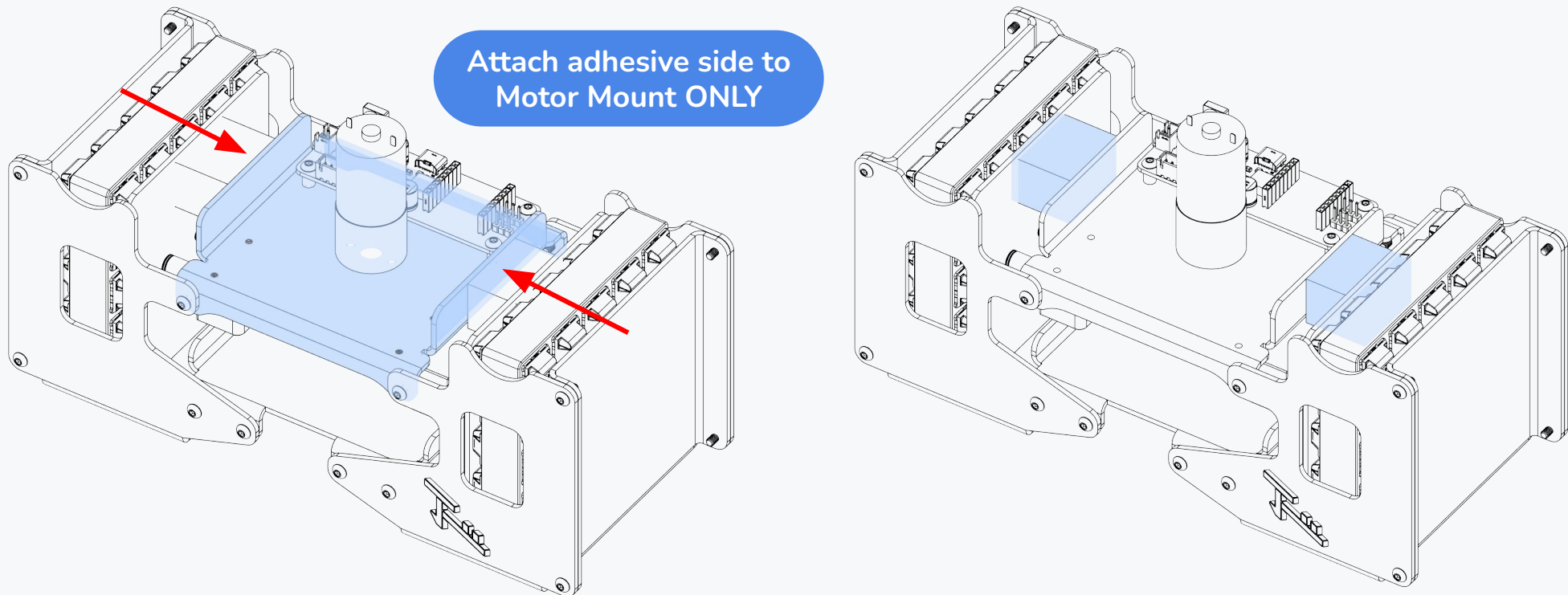


Sound Dampening

If desired, you may install the self-adhesive **PU Foam** shipped with your machine.

Please cut the **70mm** length strip located in the clear bag into 2x **30mm** strips before installing

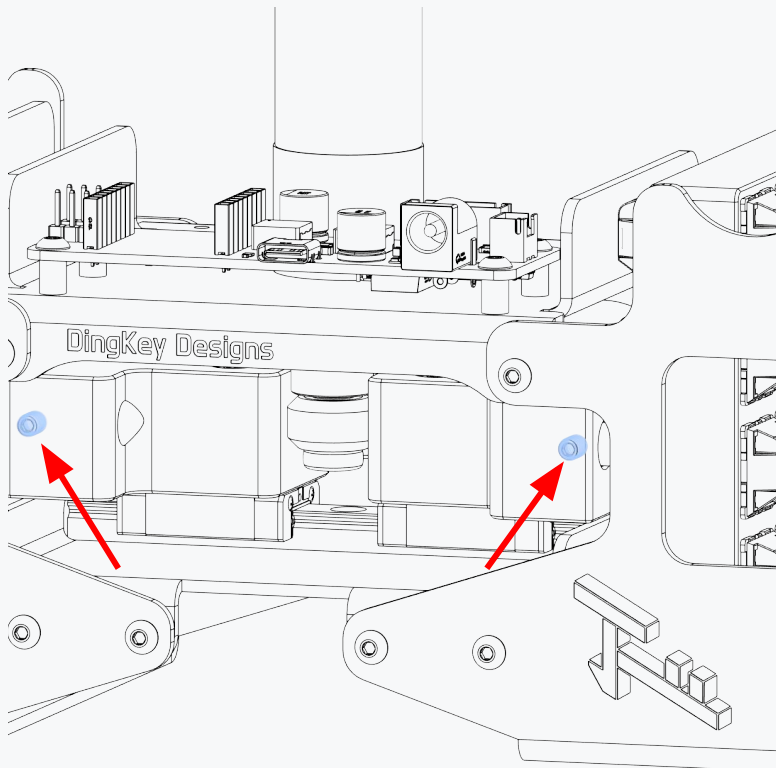
Please refer to the images below for installation positioning.



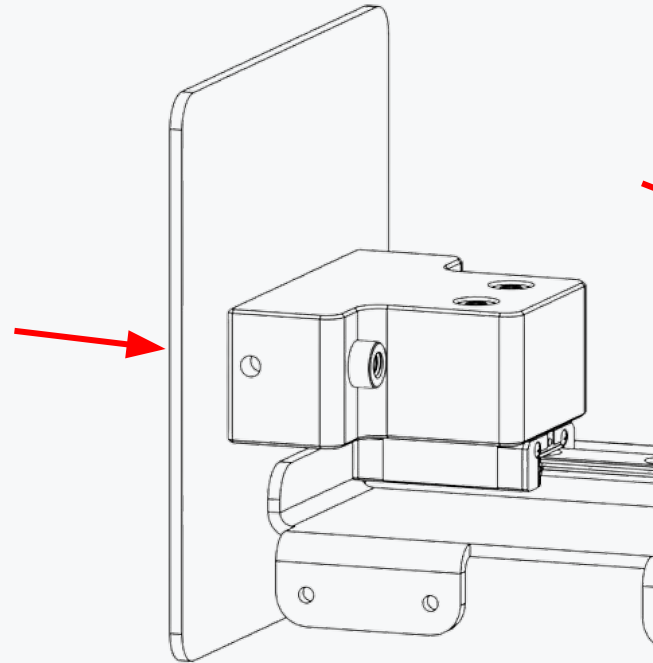
Off-Center Kit (BETA)

Currently the Off-Center Kit for the MK2 machine is in beta, please feel free to give us any feedback regarding the product

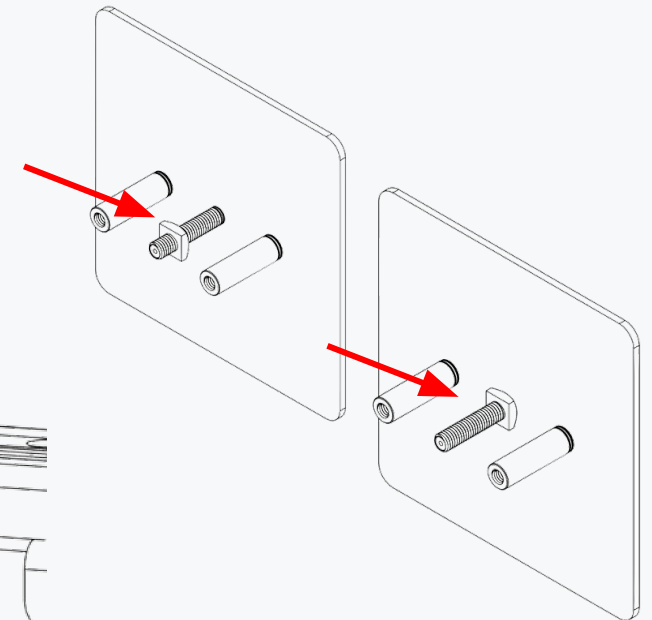
1. Loosen set screws



2. Set piston to shortest position



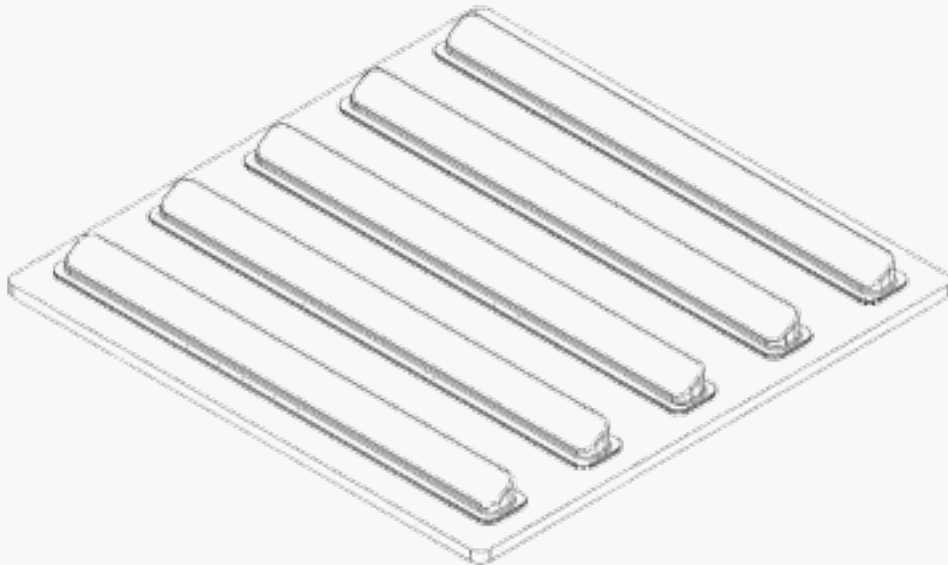
Turn square nut clockwise to shorten/tighten



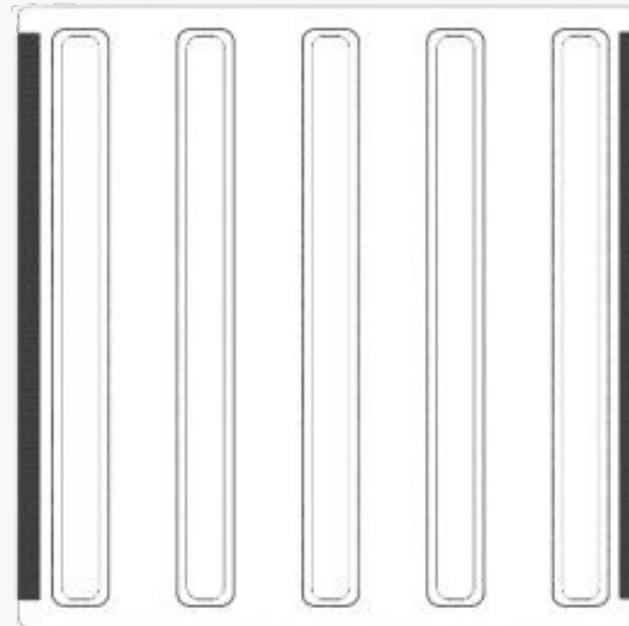
Off-Center Kit (BETA)

Currently the Off-Center Kit for the MK2 machine is in beta, please feel free to give us any feedback regarding the product

3. Insert silicone wedges into plate



4. Apply included PTFE tape to edges

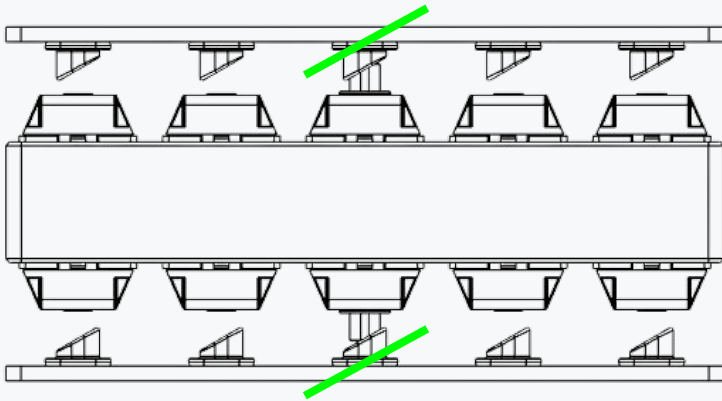


Tape is parallel with wedges

Off-Center Kit (BETA)

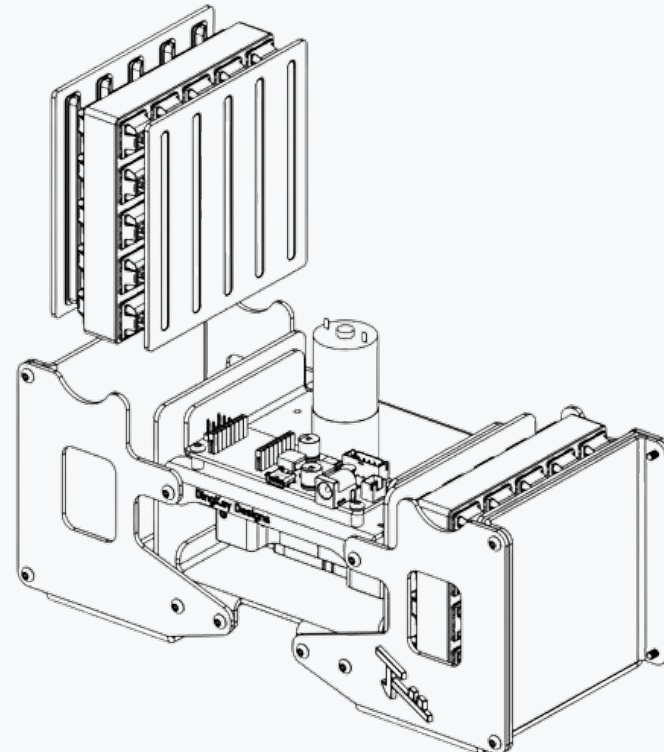
Currently the Off-Center Kit for the MK2 machine is in beta, please feel free to give us any feedback regarding the product

5. Set up OC "sandwich"



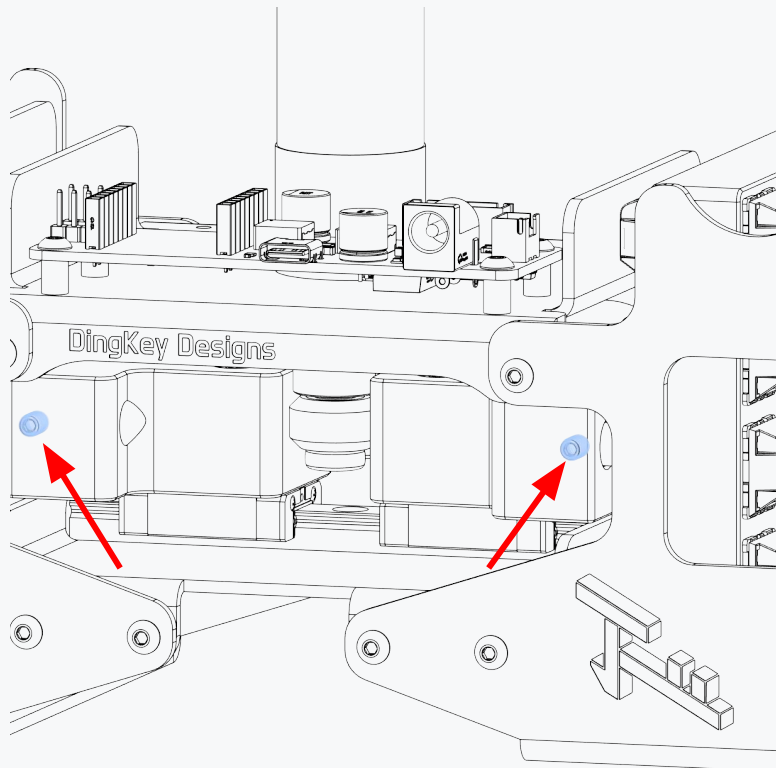
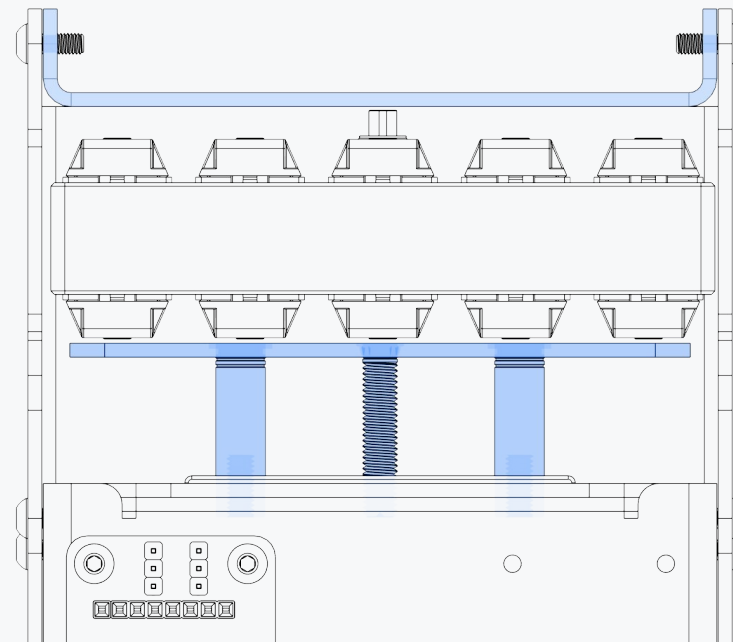
Note orientation of wedges

6. Install into machine



Off-Center Kit (BETA)

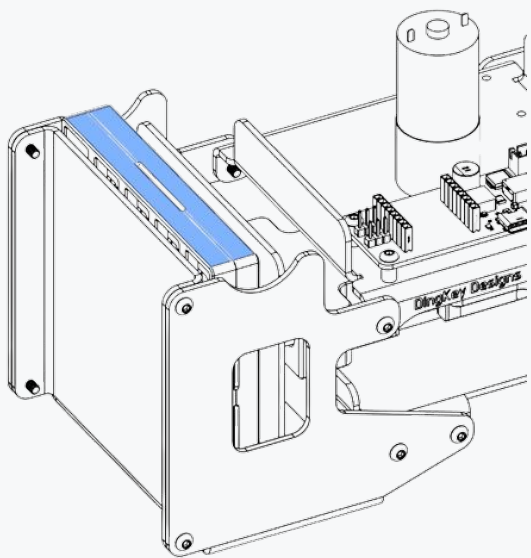
Currently the Off-Center Kit for the MK2 machine is in beta, please feel free to give us any feedback regarding the product

7. Adjust set screws once more**8. Check for parallel alignment between Piston Plate and Back Plate**

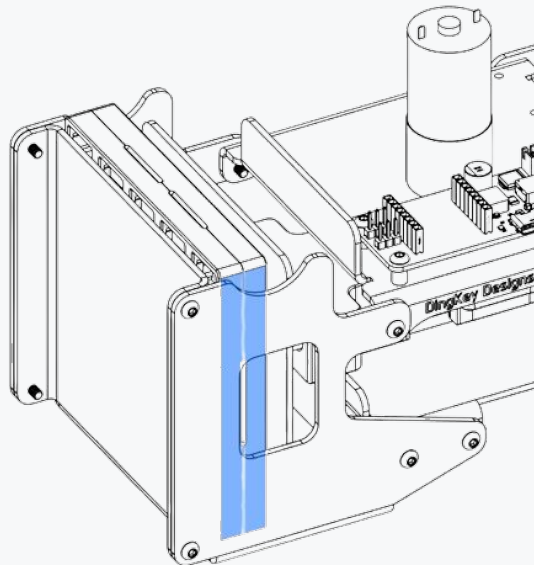
Off-Center Kit (BETA)

Carriage positioning system

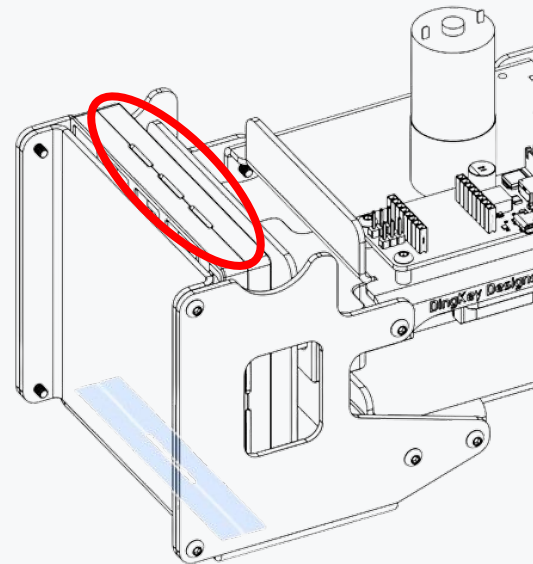
Position 1



Position 2

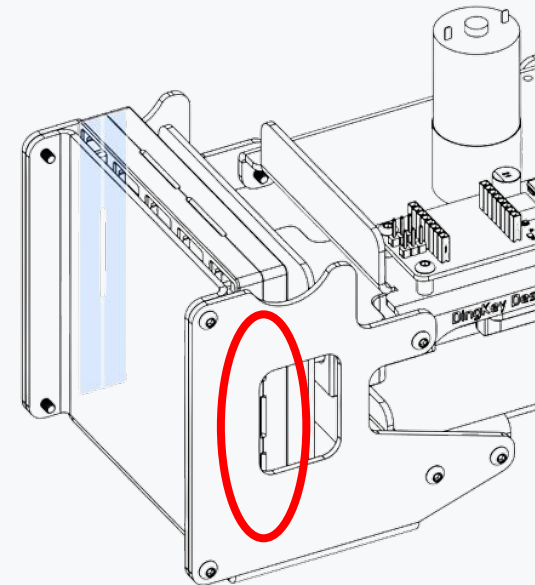


Position 3



3 notches are visible on top

Position 4



3 notches are visible to logo face

Software Updates

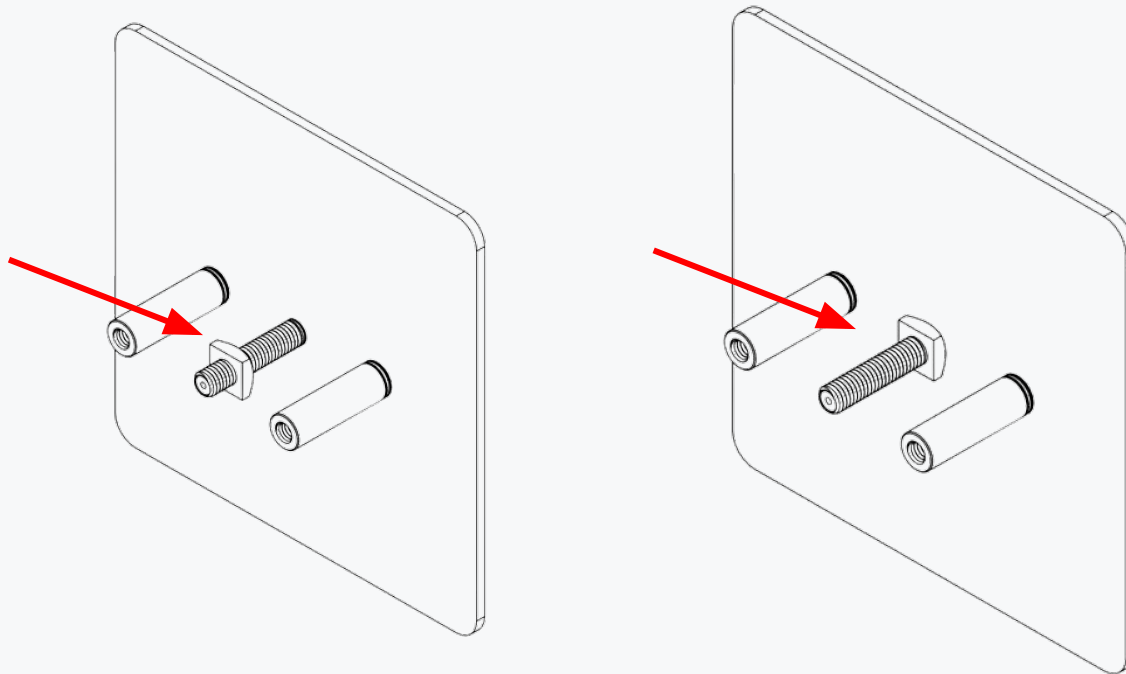
In the event of software updates, please download the latest compiled software on our GitHub page.

Flashing instructions TBA at a later date

Long-pole switch operation (WIP)

Gradually adjust the square nut tighter/looser until no additional resistance or overactuation is felt by the switch stems.

Turn square nut clockwise to shorten/tighten



If you have long-pole switches please contact us via Discord ticket for tuning instructions.

If power delivery issues are encountered please also contact us via Discord ticket.

Full write-up is WIP

Contact

Please do not hesitate to contact us via our Discord, Email, or Shopify Inbox communication options if you have any further questions regarding usage of the machine. This manual is still WIP and may be updated to reflect future changes.

Here at DingKey Designs we are still trying to keep up with everyday life so please allow up to **2-3 business days** for a reply if we do not respond within a few hours.

Thank you for all your continued support of our product.

Stay tuned for future developments!



Discord

<https://discord.gg/sR28xtXAaU>



dingkeyus@gmail.com

DingKey Designs

