

# Makertech

## Stage 01 - Base

Base assembly with all of the electronic components and frame struts.

Written By: Makertech

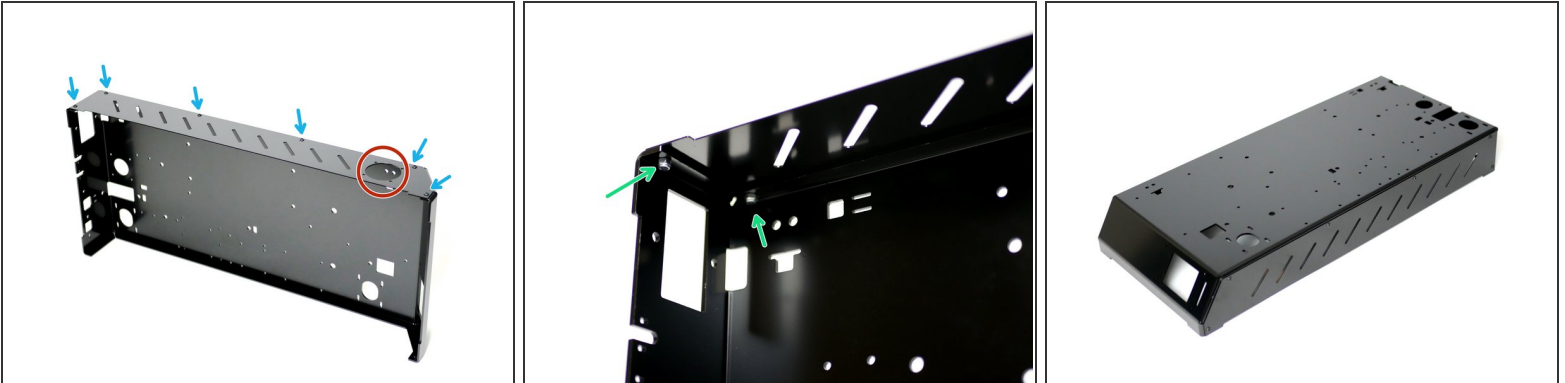


## Step 1 — Fasteners



- i** Before starting a stage we recommend sorting the fasteners from the fastener packs first for a quicker work flow.

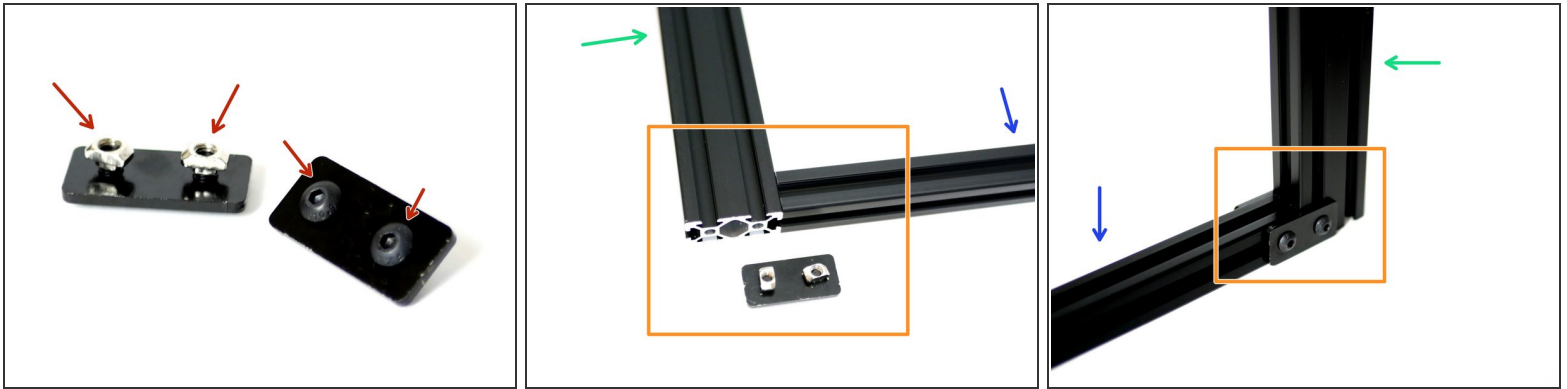
## Step 2 — Base Side Panels



- i** Attach the side panels to the base with twelve M3 x 8mm bolts and twelve M3 Nyloc Nuts.

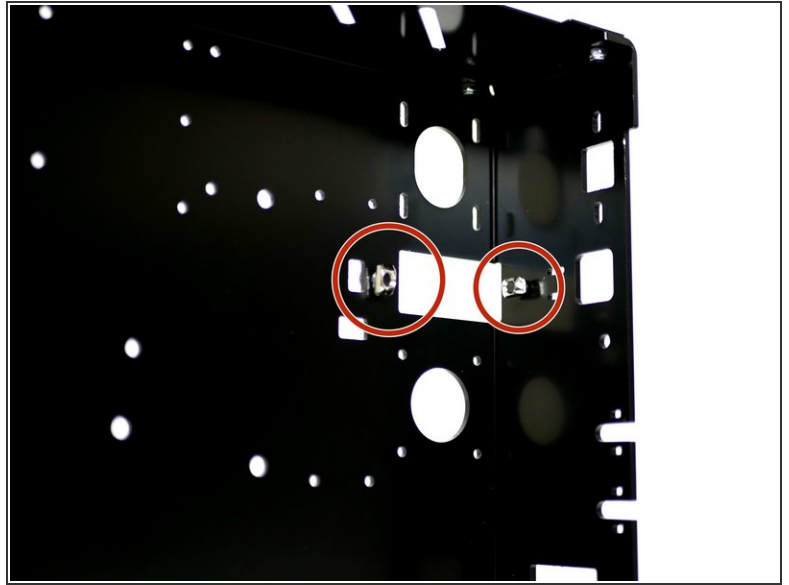
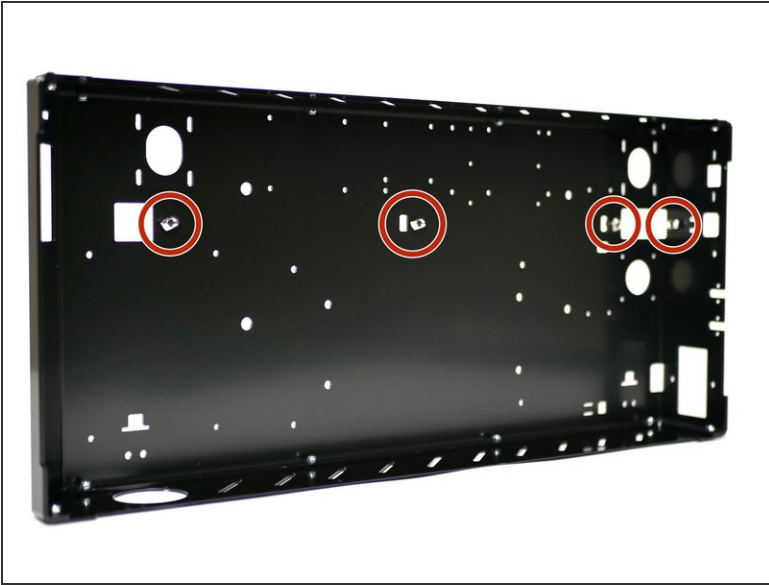
- The left panel should have the fan mounting holes.
  - Drop all of the bolts for the panel in first to get the proper alignment.
  - M3 x 8mm Bolt
  - M3 Nyloc Nut
- 🔧** A pair of pliers will be needed to hold the nut as you tighten down the bolt.

### Step 3 — Support Beam Assembly



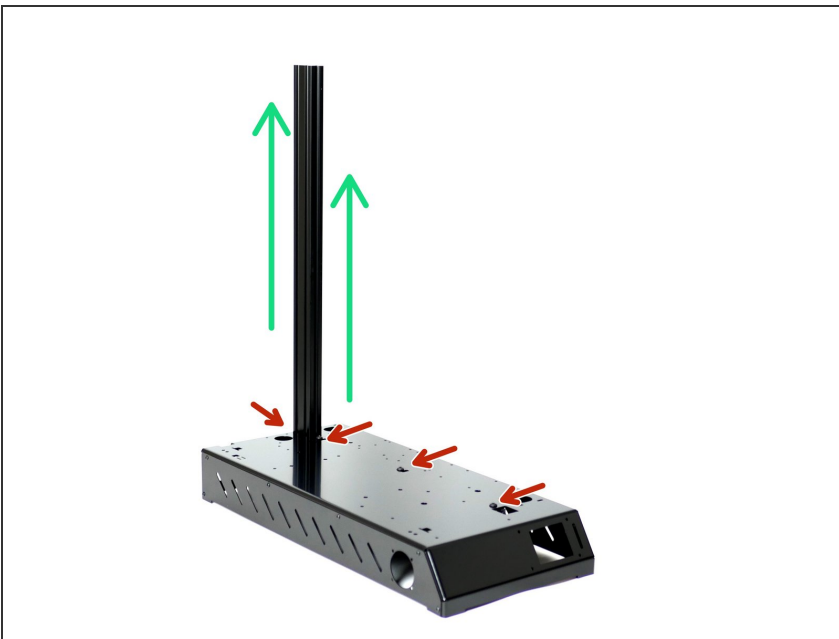
- Prepare two steel extrusion brackets with two M5 x 8mm bolts and two M5 T-Nuts.
  - ☑ Loosely attach the M5 T-Nuts.
- Use the steel extrusion brackets to fix together the 2040 x 500mm and 2020 x 360mm beams.
  - ☑ Match the image exactly.
    - 2040 x 500mm Beam
    - 2020 x 360mm Beam
  - ☑ Make sure there are no gaps between the two beams and that the 2040 beam is not over hanging.

## Step 4 — Prepare Base for Support Beams



- Loosely attach to the base four M5 x 8mm bolts with M5 T-Nuts.

## Step 5 — Installing the Support Beam Assembly



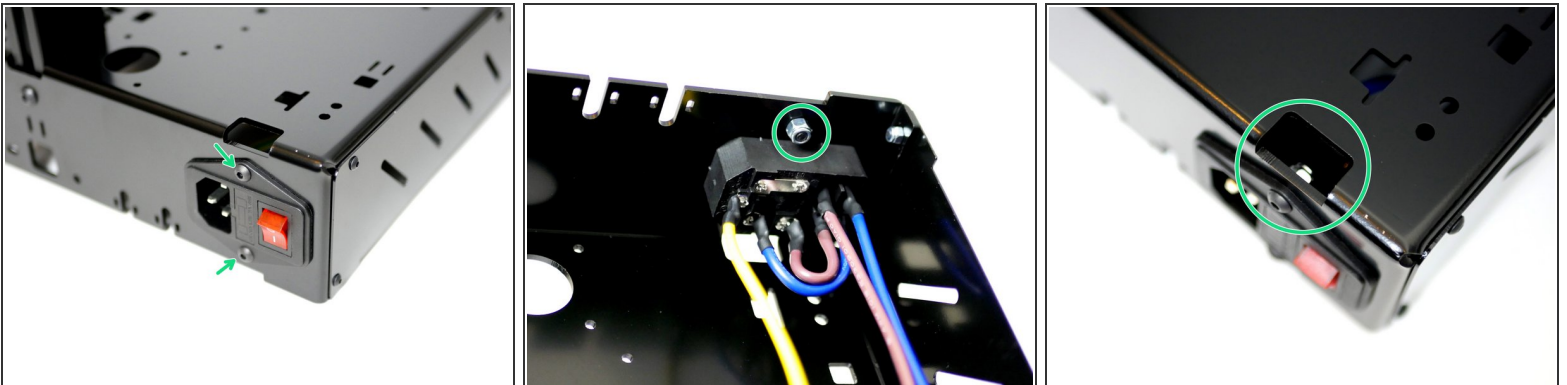
- Slide the Support Beam Assembly in through the rectangle hole from the underneath of the Base.
  - ☑ The wider 2040 Beam should be pointing upwards.
- Secure the support beam assembly to the base by tightening down the four M5 x 8mm bolts.
  - ☑ Use the rectangle holes to check that all of the T-Nuts have correctly attached to the extrusion beams. Sometime you may need to use the end of an allen key to force them to turn.

## Step 6 — IEC Switch



- Check that IEC Switch has a fuse by popping open the compartment with a flat head screw driver.
- ⚠ Check that the IEC Switch cables are all properly connected and insulated as shown in the image.

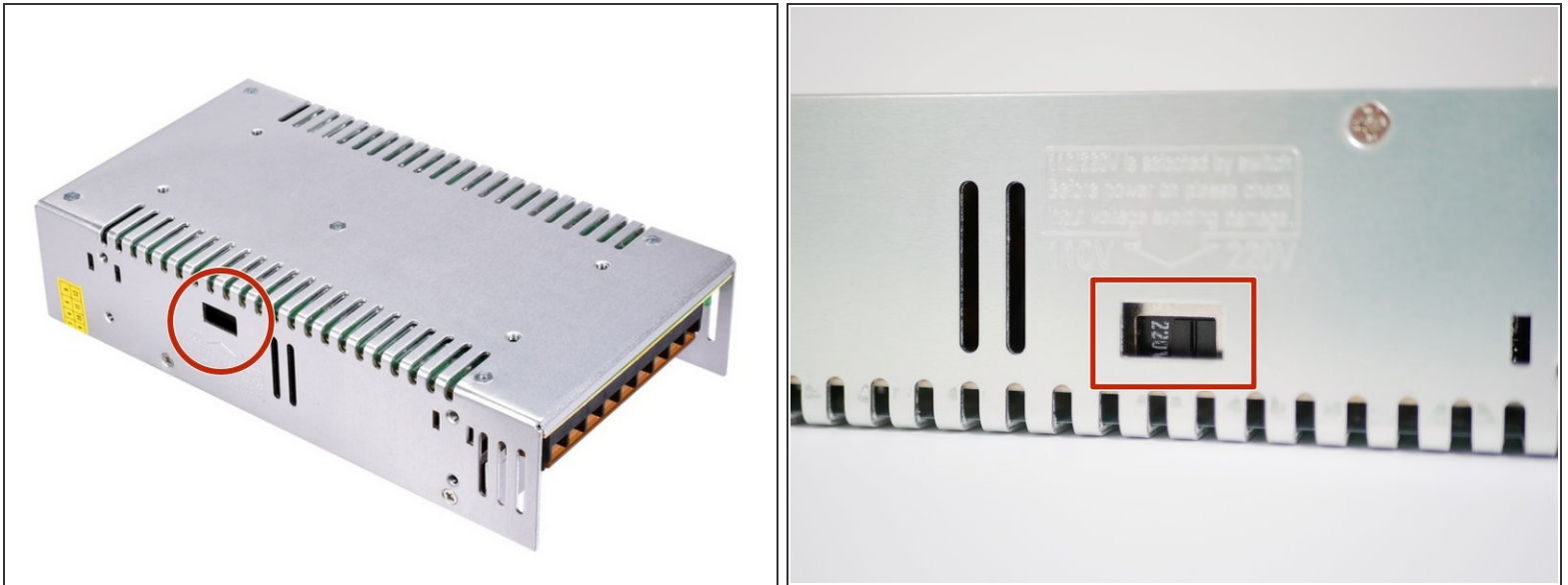
## Step 7 — IEC Switch Install



- Fix the Switch to the Base with two M4 x 10mm bolts and two M4 Nyloc Nuts.
- ☑ Make sure the red switch faces towards to side panel.
- ☑ Use the hole in the top of the base to gain access to the top M4 Nut to hold with the pliers.



## Step 8 — Power Supply Unit



- Check that your power supply is set to match your mains voltage by flipping the switch on the side of the unit with a flat head screw driver.

**⚠ INCORRECTLY SETTING THIS WILL DAMAGE THE POWER SUPPLY!**

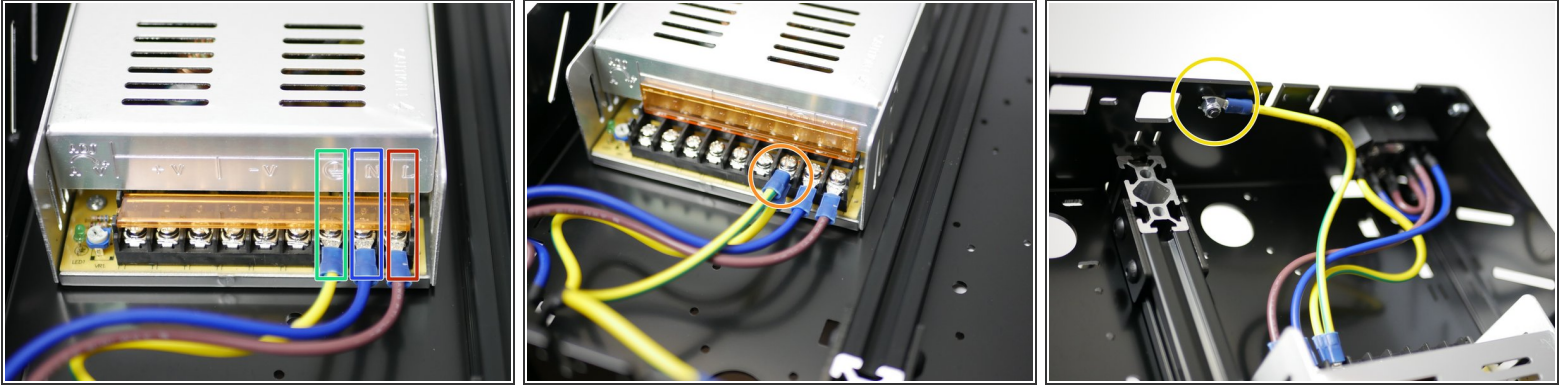
## Step 9 — Fixing the Power Supply to the Base



- Align the 4mm holes on the back of the power supply with the four 4mm holes on the base.
- Fix the power supply to the base with four M4 x 6mm bolts.

**☑ Make sure the screw terminals on the power supply are facing towards the switch.**

## Step 10 — IEC Switch Wiring



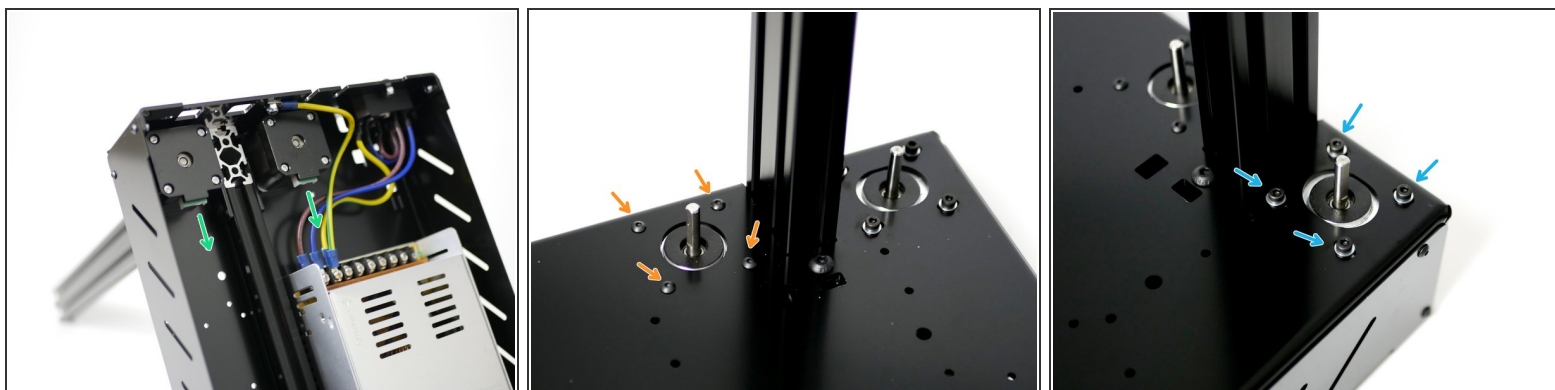
**i** Connect the cables from the IEC Switch to the power supply.

- Yellow/Green = Earth
- Blue = Neutral (Negative)
- Brown = Live (Positive)

**⚠** Match the symbols on the power supply to the cables.

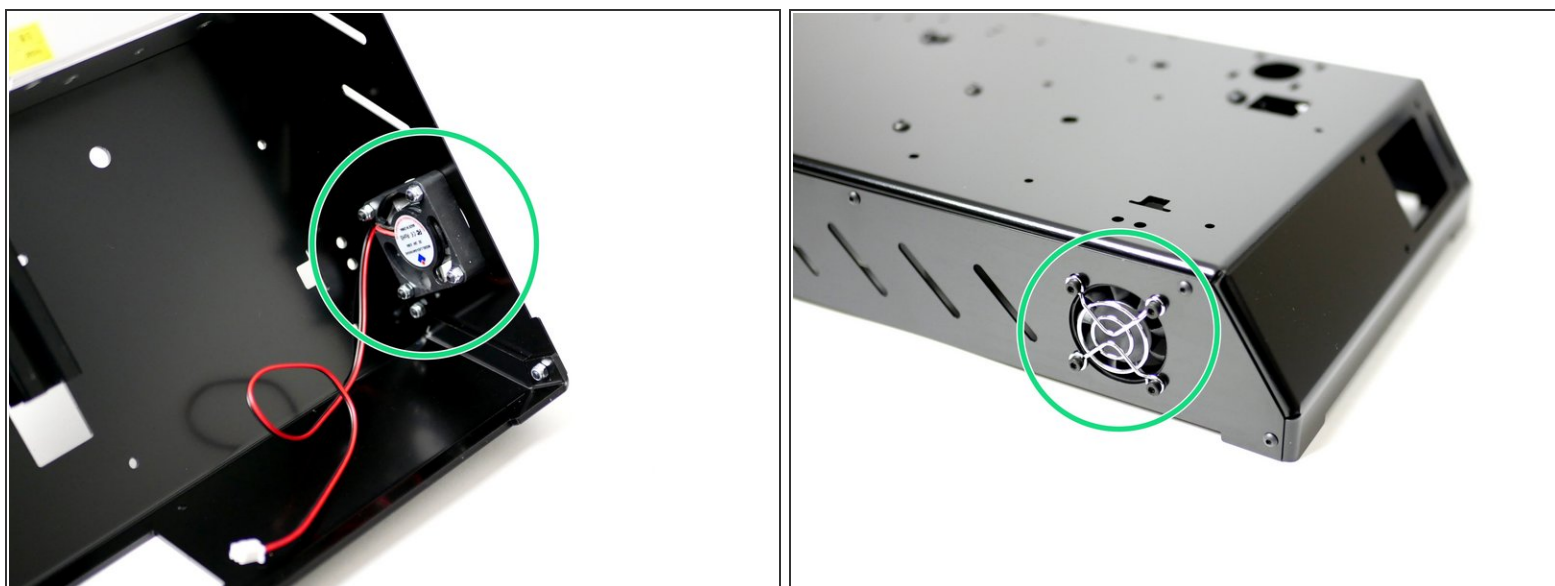
- Also connect to the Earth terminal the frame earthing cable.
- Connect the other end of the cable directly to the frame with an M4 x 10mm bolt and M4 Nyloc Nut.

## Step 11 — Y & Z Stepper Motors



- Install two NEMA 17 motors to the Base; orientate the cable ports towards the front of the base.
- Fix the motor on the left of the 2040 beam with four M3 x 6mm button head bolts.
- Fix the motor on the right of the 2040 beam with four M3 x 6mm cap head bolts and four M3 washers.

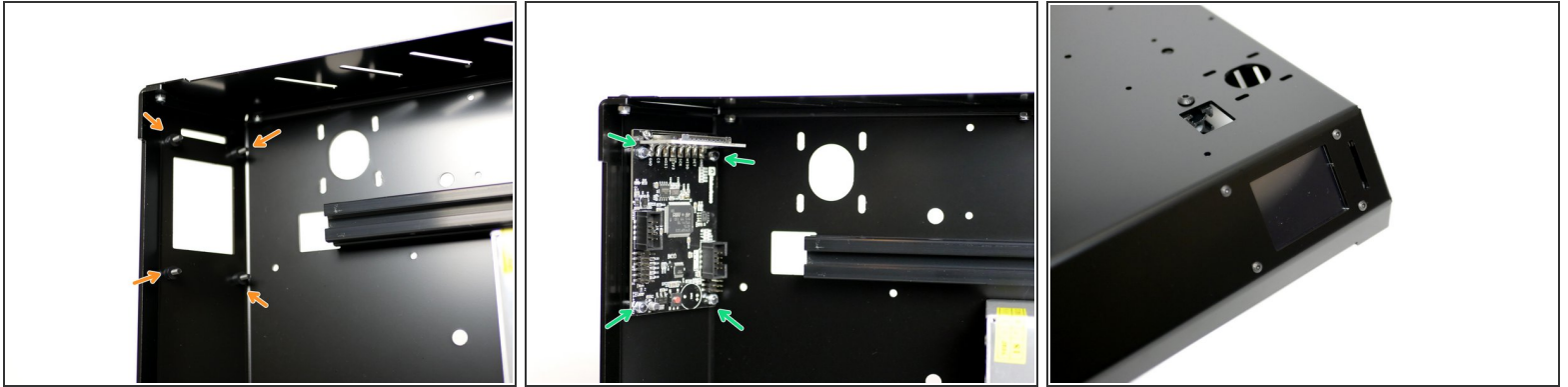
## Step 12 — Electronics Fan



- Attach the 40mm electronics fan and fan guard to the side panel with four M3 x 18mm bolts and four M3 nyloc nuts.
- ⓘ Orient the fan so that the sticker side faces inwards and the cable points to the roof of the base.

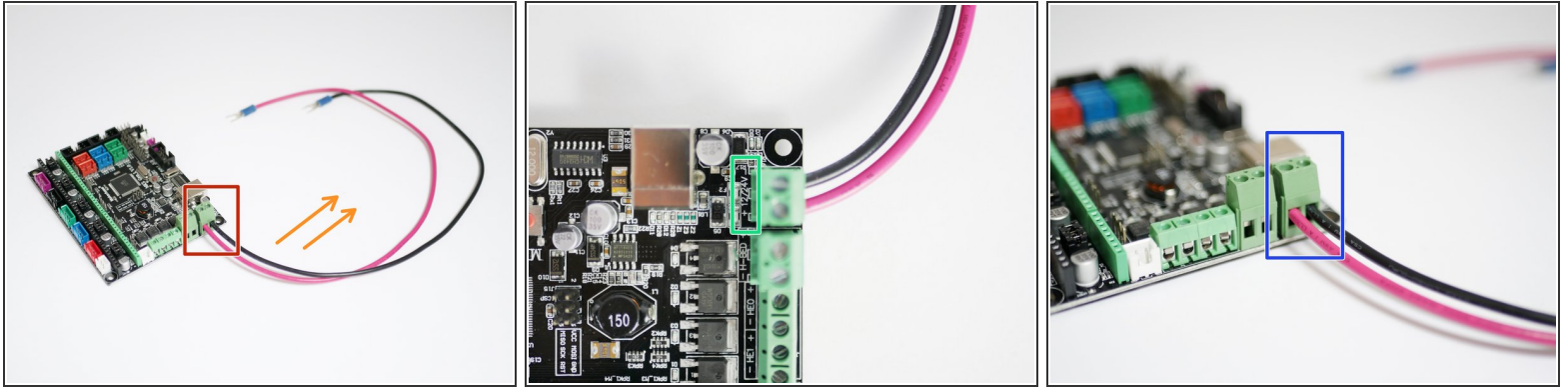


## Step 13 — Touch Screen



- Prepare **four M3 x 14mm bolts** and **four M3 x 5mm spacers** onto the touch screens mounting holes.
  - Fix the touch screen onto the base with four M3 nyloc nuts.
- ⚠ Ensure you use four (4) M3 x 5mm spacers ( *Other fasteners bag*) or you may risk damaging the screen. **Do not over tighten.**

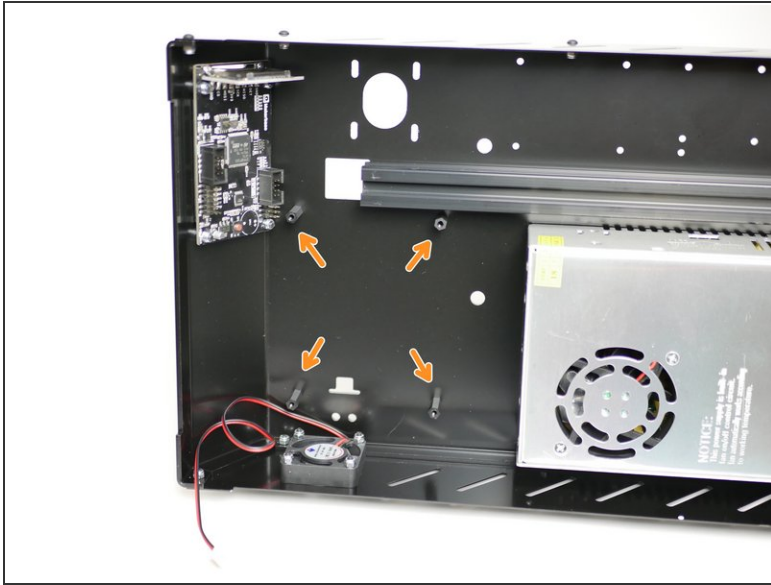
## Step 14 — Control Board Power Cables



**⚠ Before handling the board ground yourself by touching a large metal object. Also avoid placing the board on carpet or anything that may cause a static charge.**

- Fix the black and red power cables into the connector on the control board.
  - Orient the cables to the right as shown in the photo.
  - Connect Red to + and Black to - as marked on the board.
- Make sure to insert the stripped section of the cable into the connector entirely and to fasten the set screw down TIGHTLY.

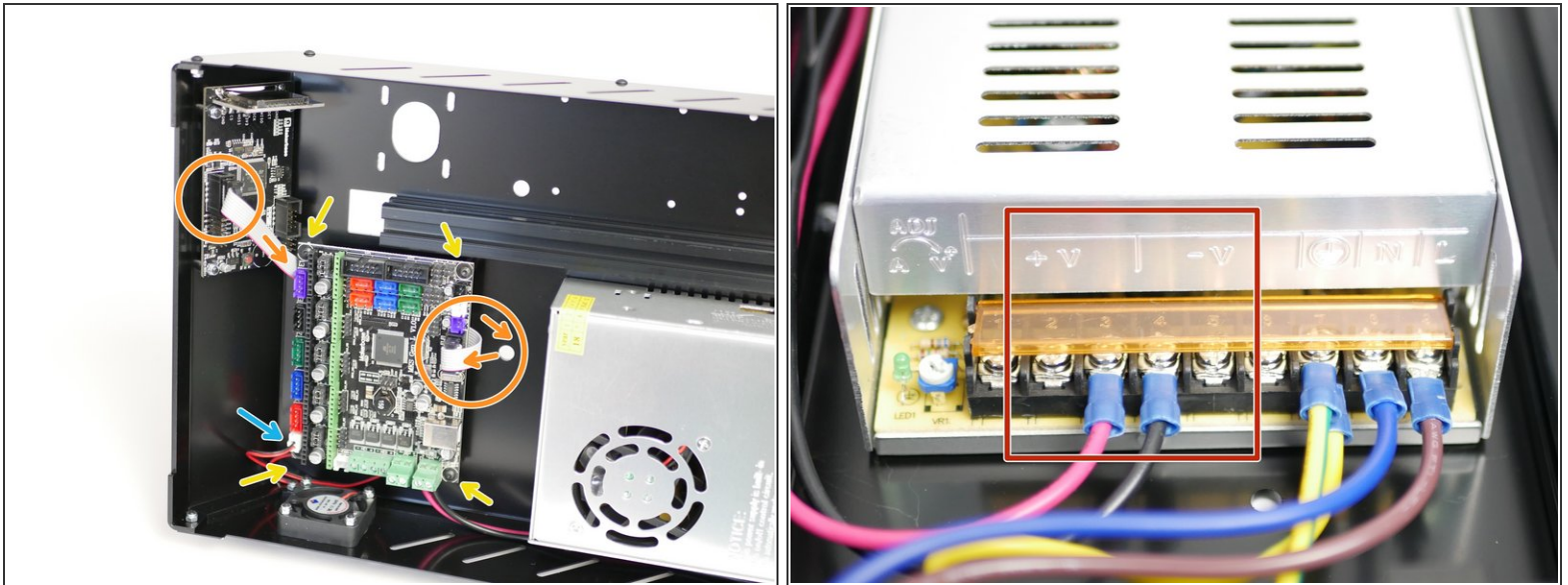
## Step 15 — Control Board Mounts



**i** Fix four M3 standoffs onto the Base with four M3 x 6mm bolts.

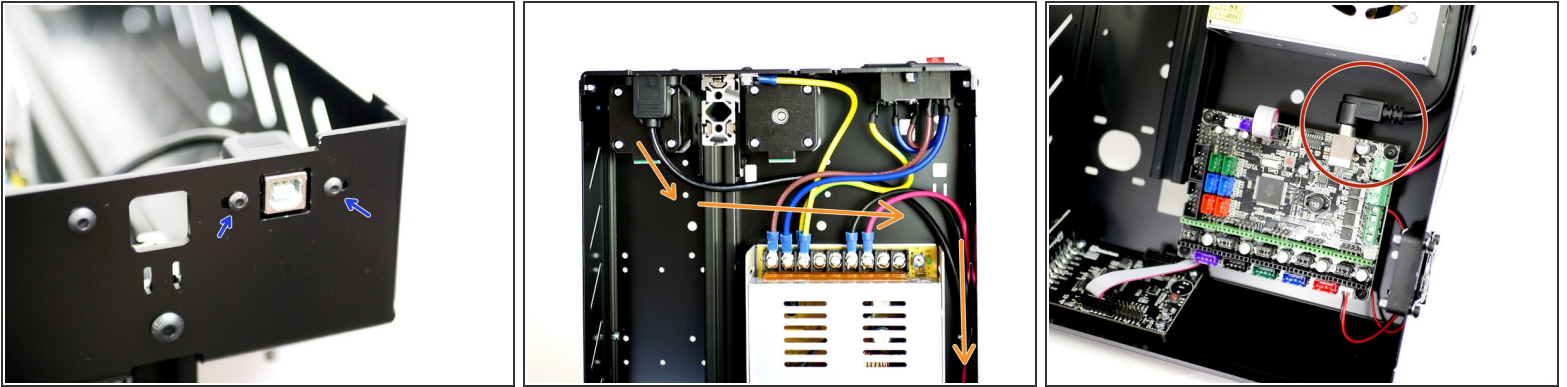
- M3 Standoff
- M3 x 6mm bolt

## Step 16 — Control Board Install and Wiring



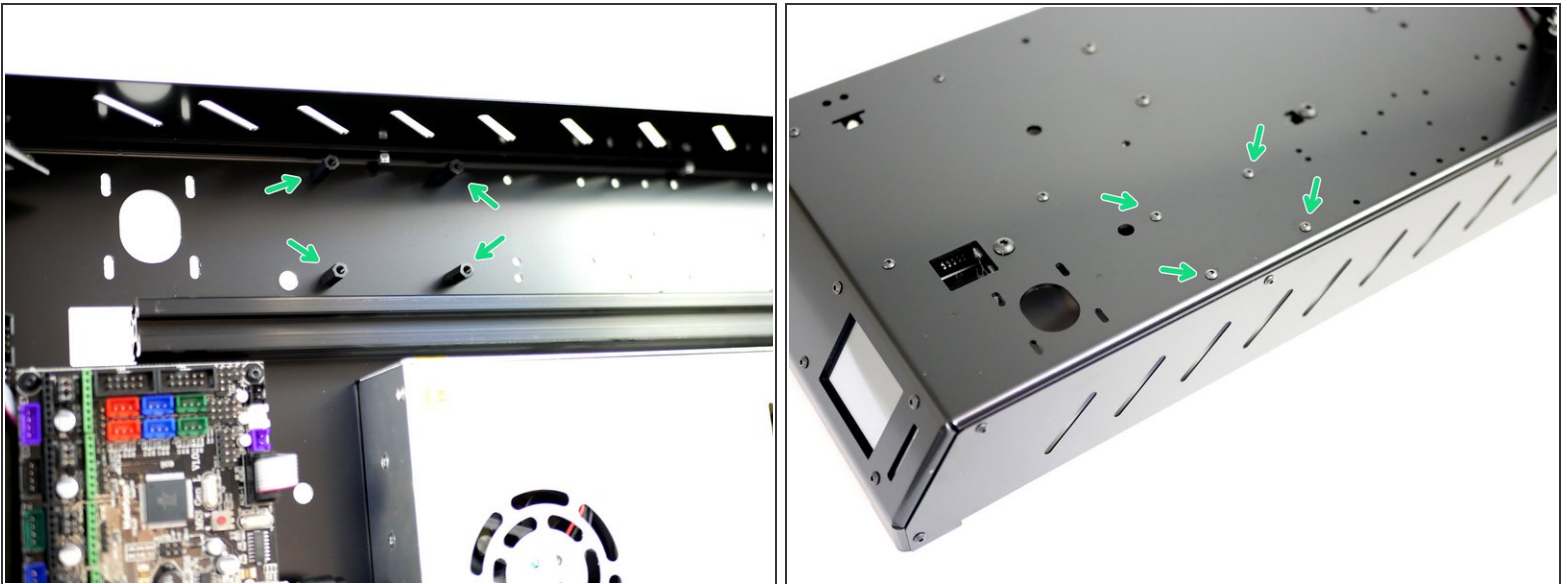
- Fix the ribbon cable to the back of the touch screen display, route it under the control board and connect the other end to the board.
- Secure the control board to the base with four M3 x 6mm bolts.
- Plug the electronics fan cable into the white port on the control board **next to the red connector**.
- Securely attach the power cable connectors to the terminals on the power supply.
  - ❗ Red = +
  - ❗ Black = -

## Step 17 — USB Port



- Fix the USB B cable to the back of the base with two M3 x 6mm bolts.
- Route the cable along the side of the power supply.
- Connect the other end of the cable to the control board.

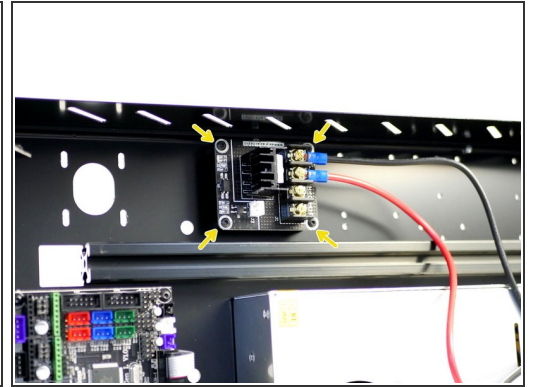
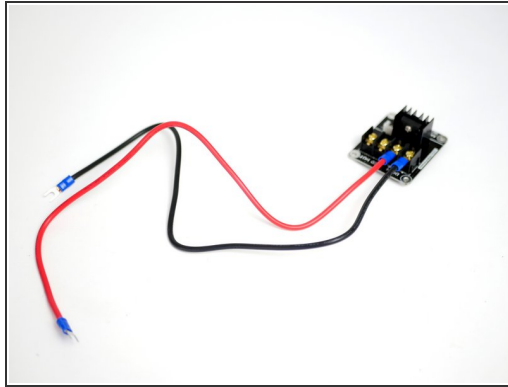
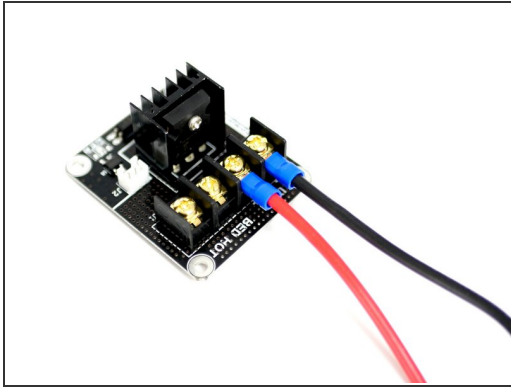
## Step 18 — MOSFET Mounts (2S only)








- Fix four M3 x 15mm standoffs to the base with four M3 x 6mm bolts.

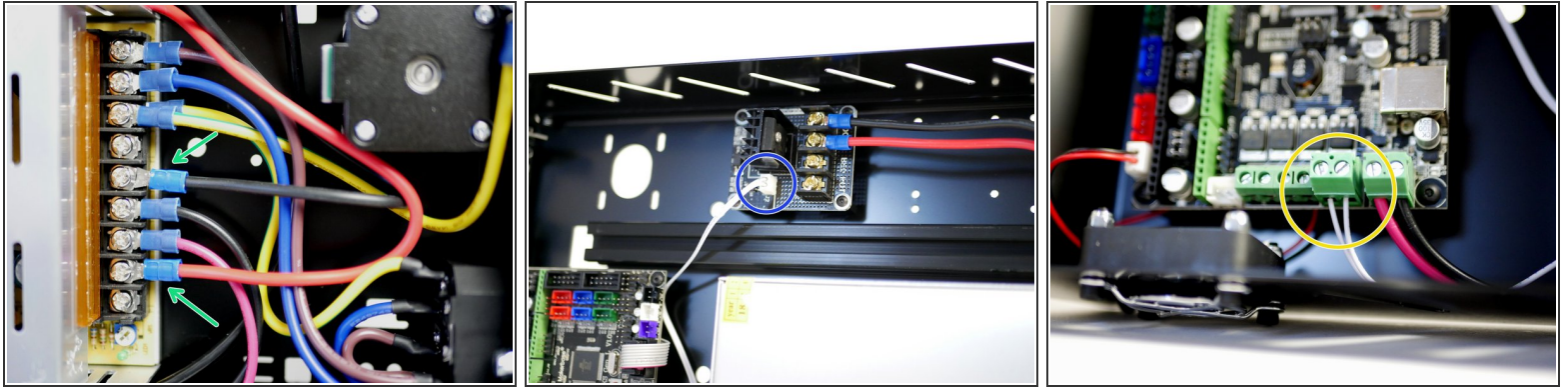


## Step 19 — Preparing and Mounting the MOSFET



-  Fix the power cables to the MOSFET terminals.
  -  Black = Negative (-)
  -  Red = Positive (+)
-  Mount the MOSFET onto the base with four M3 x 6mm bolts.
-  Make sure the cables face towards the back of the base.

## Step 20 — Wiring the MOSFET



- Connect the other ends of the power cables from the MOSFET to the power supply:
  - Black = Negative (-)
  - Red = Positive (+)
- Connect the white cable (included in the MOSFET bag) to the MOSFET.
- Connect the other end of the white cable to the control board as shown in the last image.
  - ☑ Which way round you plug the white cable in doesn't matter.
  - ☑ You may need to unscrew the control board from the base to get better access.