



LED Light Bar Prusa MINI

[VIEW IN BROWSER](#)

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Summary

Light bar for the Prusa MINI.



3.45 hrs



1 pcs



0.20 mm



0.40 mm



PET



43 g



Prusa MINI /
MINI+

[3D Printers](#) > [Accessories](#)

Tags: [light](#) [mini](#) [led](#) [lightbar](#) [accessory](#) [accessories](#)
[prusamini](#)

Light bar for the Prusa MINI. Mounts are designed to fit 11x24mm aluminum u-channel and have a hollow interior that is used to route the wires down the back of the printer frame for a clean look. Mount also includes an opening to insert a power switch. The LED strips can be powered by the printer power supply using a 24V LED strip.

Due to the power draw of the heat bed, you may notice a very faint pulsing in the LED brightness as the heat bed turns on and off during printing. To fix this you can either

1. Use the external power box to power the LEDs using an external 24V power supply.

-or-

2. Printables user [@RetroModder_310561](#) has developed a dimmer circuit board that also fixes the LED flickering when powered by the printer's power supply. The circuit board can be purchased from their [Etsy store](#).

See below for assembly instructions.

This is the light bar for the Prusa MINI. Click below for the MK2/MK3/MK4 versions.

[MK4 Light Bar](#)

[MK2/MK3 Dual Light](#)

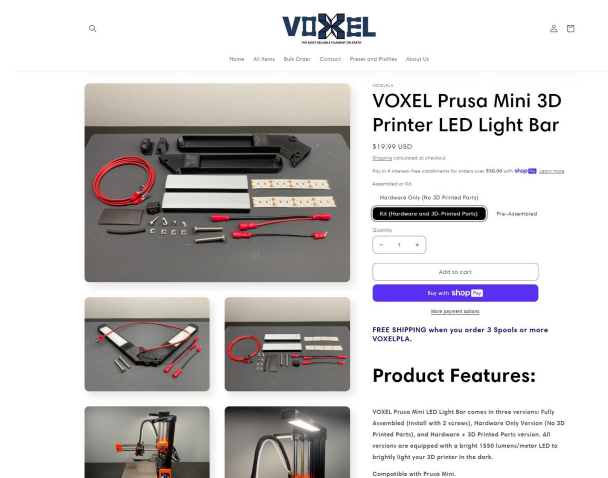
[MK2/MK3 Dual MMU2 Light](#)

[MK2/MK3 Single Light](#)

[MK2/MK3 Bear Upgrade](#)

[MK3 Side Light Bar](#)

I have partnered with VOXELPLA to offer the MINI Light Bar as kits and pre-assembled light bars. Visit the [VOXELPLA Store](#) for more info.



Files:

MINI Light Bar v2: New version of the MINI Light Bar that incorporates all the features of the old versions. Prints flat and can use all spare hardware. File comes in the correct orientation for printing, no supports required. Textured sheet recommended for a nice surface finish.

External Power Box: Optional piece to power the LEDs from an external power supply.

Stand-off: Optional piece for those using the Bondtech Dual Drive Extruder that needs some extra clearance. Stand-off adds 2cm of clearance. If you want less, use the cut feature in PrusaSlicer to reduce the height. NOTE: If

you use this stand-off the 30mm M5 screws that come in the hardware kit will likely not reach. You will need to source longer M5 screws.

Old Version Files:

OLD - MINI Light Bar v1: Old version of the MINI Light Bar. File comes in the correct orientation for printing, no supports required. Smooth sheet required for tight fitment of front and rear housings and strong bed adhesion.

OLD - Cap: Old version of the cap to hold the LED channels in place. File comes in the correct orientation for printing. Brim required for printing. Use with OLD - MINI Light Bar v1 file.

Change Log:

12-May-2023: Added MINI Light Bar v2 version. Updated assembly instructions to reflect v2 light bar.

Print instructions

Recommended Print Settings:

Filament type: PETG

Print Settings: 0.20mm QUALITY preset

Infill: 15% Gyroid

Supports: None, parts are specifically designed to not need supports

Required hardware (v2):

Aluminum u-channel

24V Dual Row LED strip

22 AWG Wire

Power switch (KCD11 10x15mm)

Qty: 4 - Thin M3 Square Nuts (1.8mm thickness)

Screws:

Qty: 2 - M5 x 30mm Button Head Screws

Qty: 2 - M3 X 10mm Cap Head Screws

Qty: 2 - M3 X 5mm Countersunk Screws (Part is designed for countersunk screws but can also be replaced with M3x10 Cap Head screws)

Required hardware (v1):

Aluminum u-channel

24V Dual Row LED strip

22 AWG Wire

Power switch (KCD11 10x15mm)

Qty: 6 - M3 brass inserts

Screws:

Qty: 2 - M5 x 30mm Button Head Screws

Qty: 2 - M3 X 10mm Cap Head Screws

Qty: 4 - M3 X 5mm Countersunk Screws

Optional hardware (v1 and v2):

Heat shrink tubing

16 AWG Wire

DC Power Jack

4.8mm Male/Female Spade Terminals

M3 Ring Terminal

Hardware Kit

Purchase a hardware kit from [VOXELPLA.com](https://voxelpla.com) at the link above.

Tools:

Wire stripper

Soldering iron

2mm, 2.5mm, 3mm hex keys

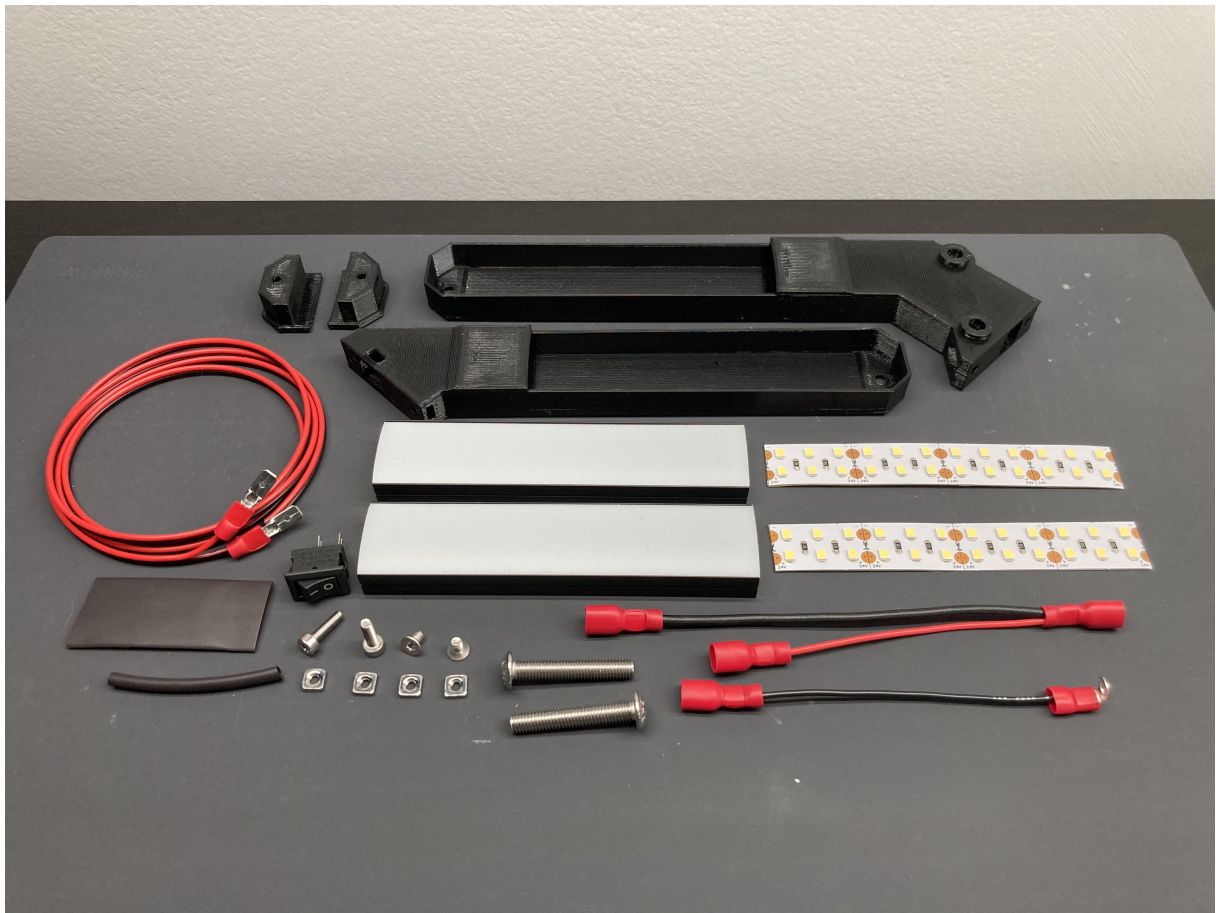
Hacksaw (not required if purchased hardware kit)

Wire crimper (not required if purchased hardware kit)

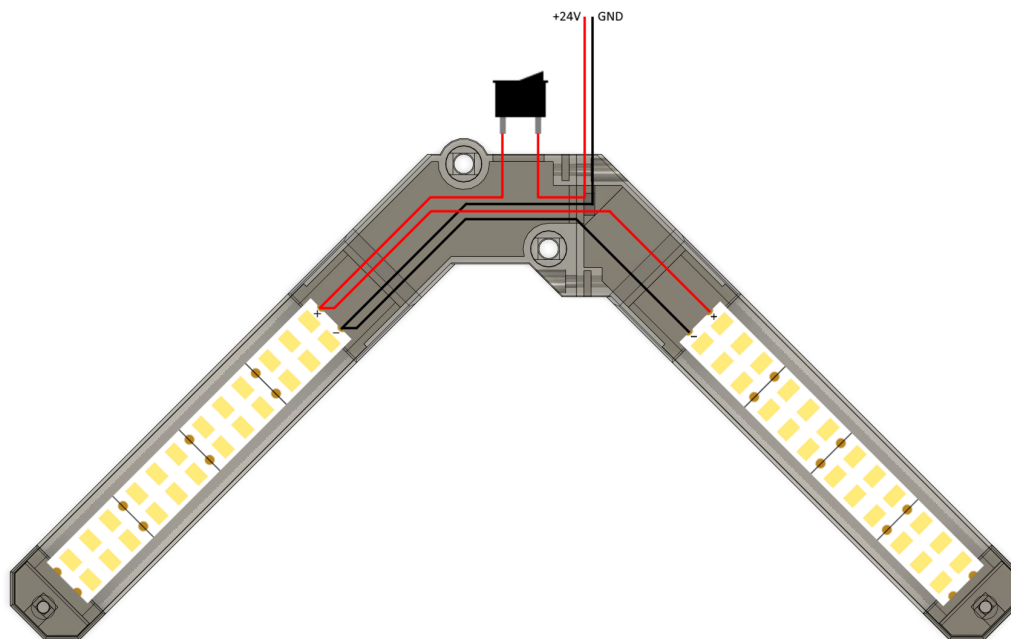
Assembly Instructions**Cut Material to Length**

If you purchased a hardware kit you can skip these steps as all material comes cut to the correct length.

1. Cut the u-channel to 105mm and check that it slides into the housings. Use a metal file to round off any sharp edges to make it slide in easier.
2. Cut the LED strip at the designated cutting areas to fit the u-channel.
3. Cut the wire to 90cm (36").



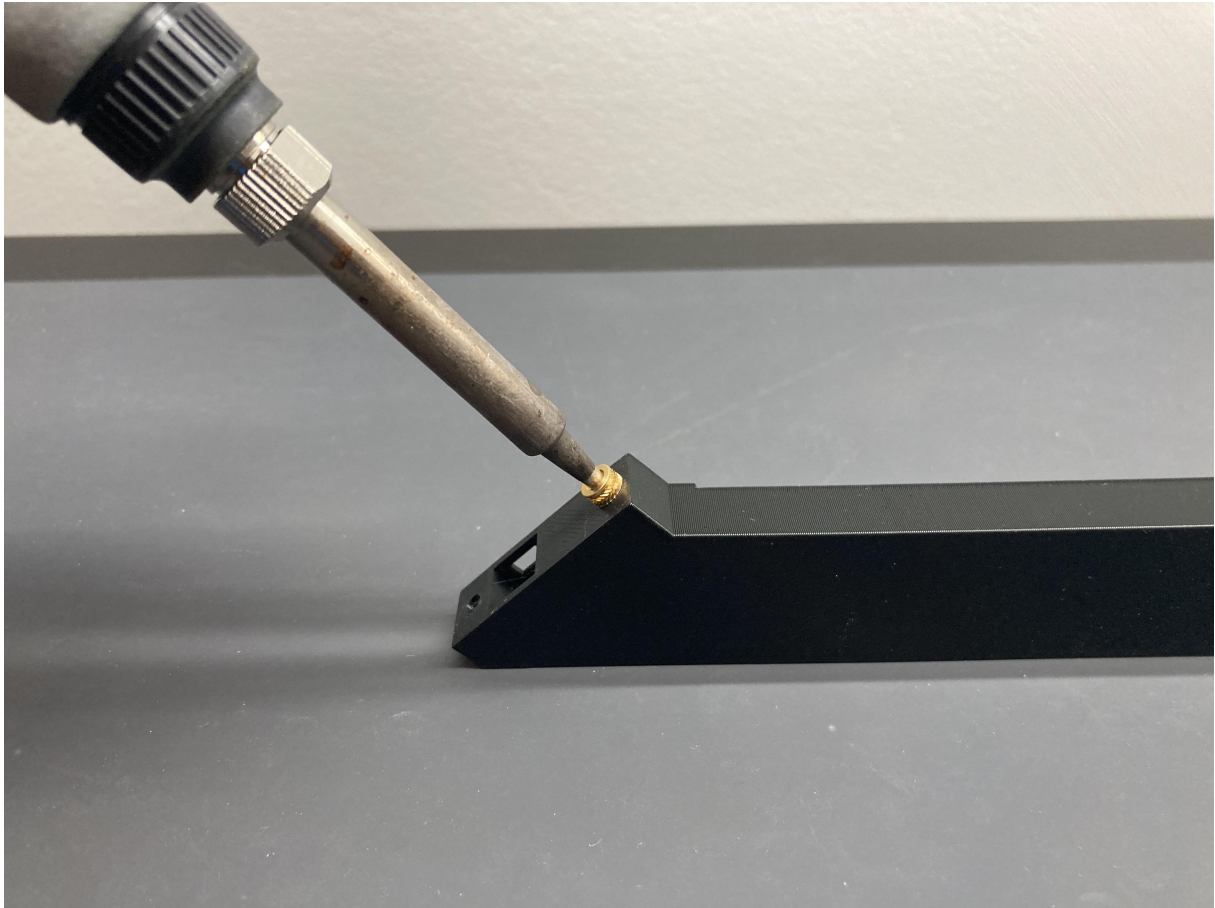
MINI light bar kit



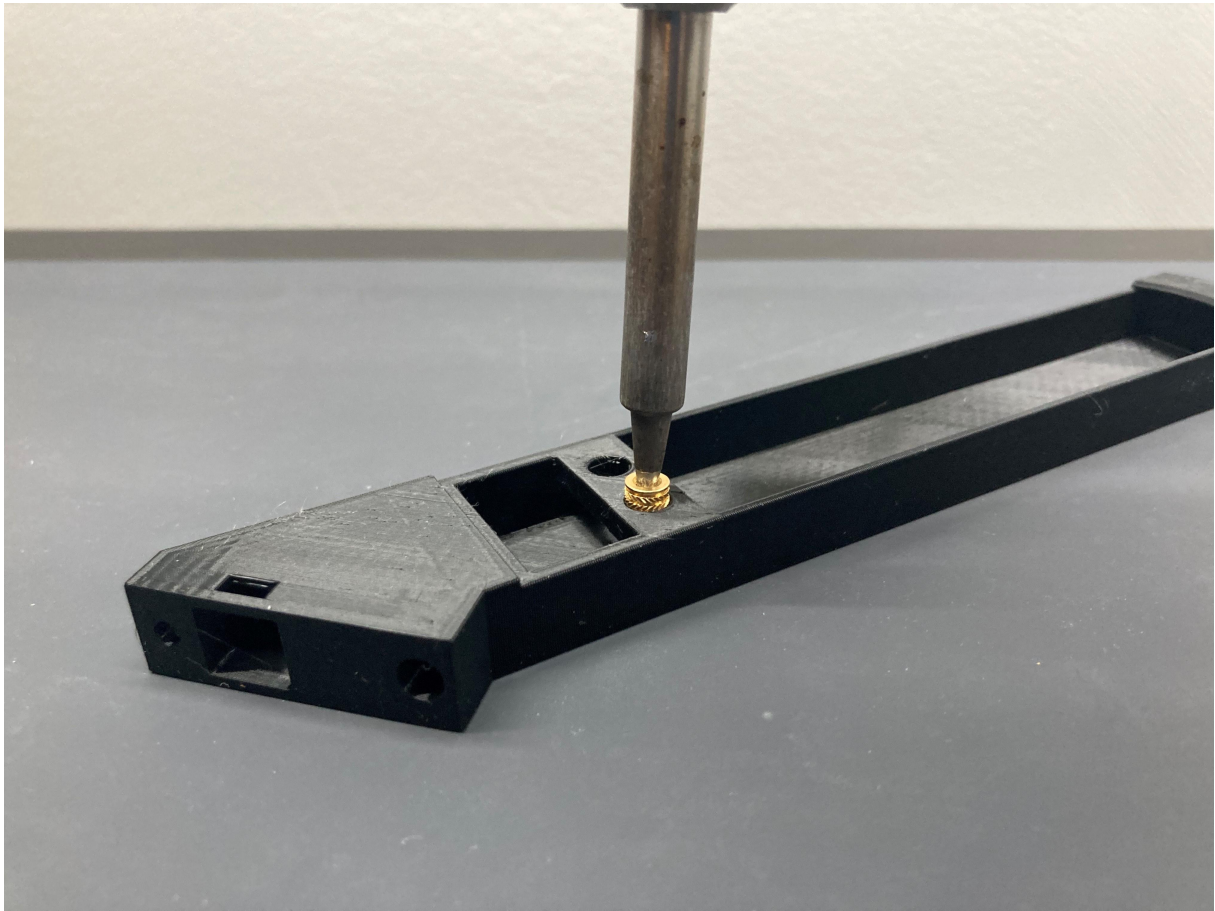
Wiring diagram

Brass Insert (Only for v1 light bar, skip if using v2)

Using a soldering iron, heat up the brass insert and slowly push it down into the housing. Put 1 insert in each of the housing mating surfaces, and 2 in each housing where the LED cap goes. You should use a total of 6 inserts. Push them in far enough that they are flush with or slightly below the print surface.



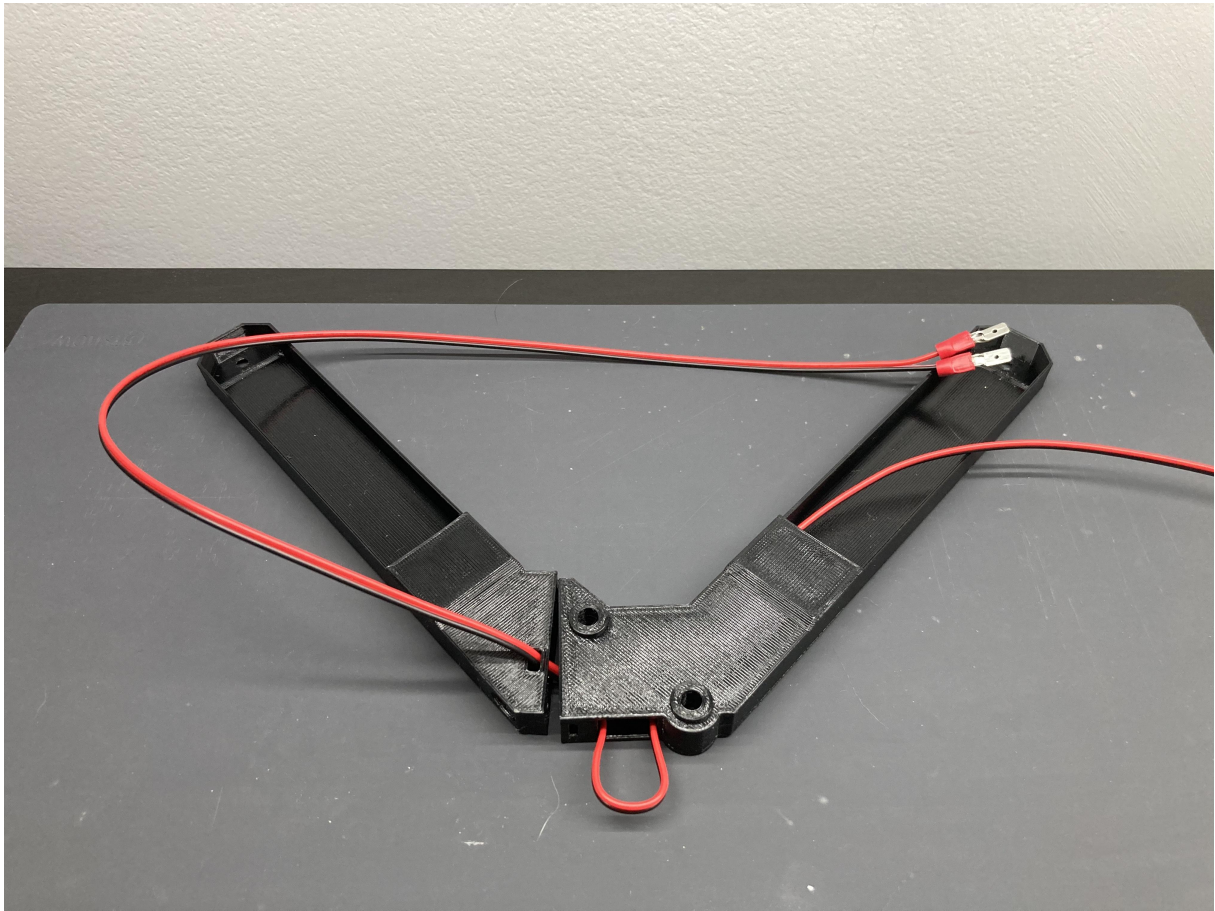
Mating surface brass insert



LED cap brass insert

Inserting Wire

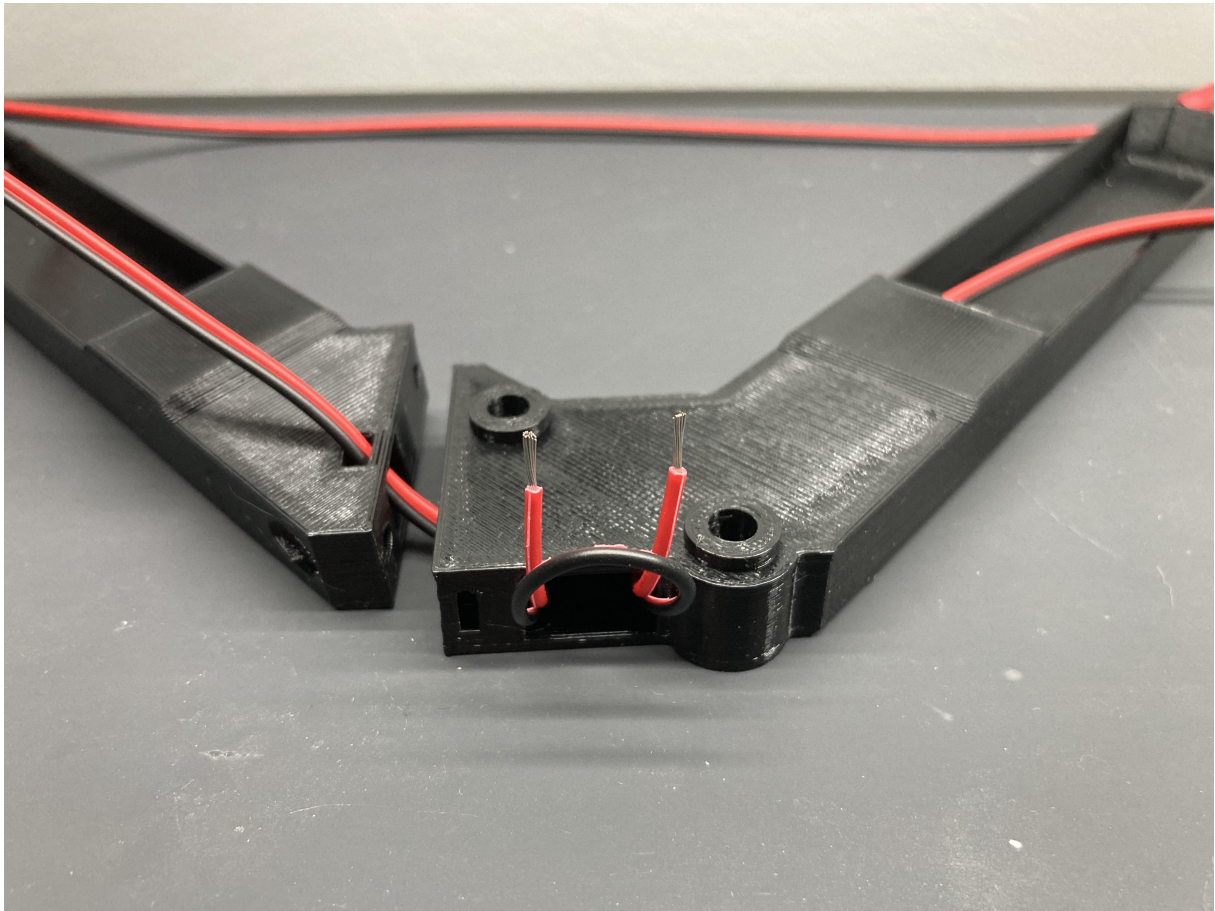
1. Insert the red and black wire through the small hole in the bottom of the rear housing, through both mating surface holes and out the switch hole. Insert the wire back through the switch hole and through to the front LED slot. Leave a small loop of wire sticking out the switch hole.
2. Feed the wire through until there is 40cm (16") of wire sticking out the small hole in the rear housing. This is the length of wire needed to reach the electronics box. If you purchased a hardware kit, the male spade terminals will already be crimped to this end of the wires.



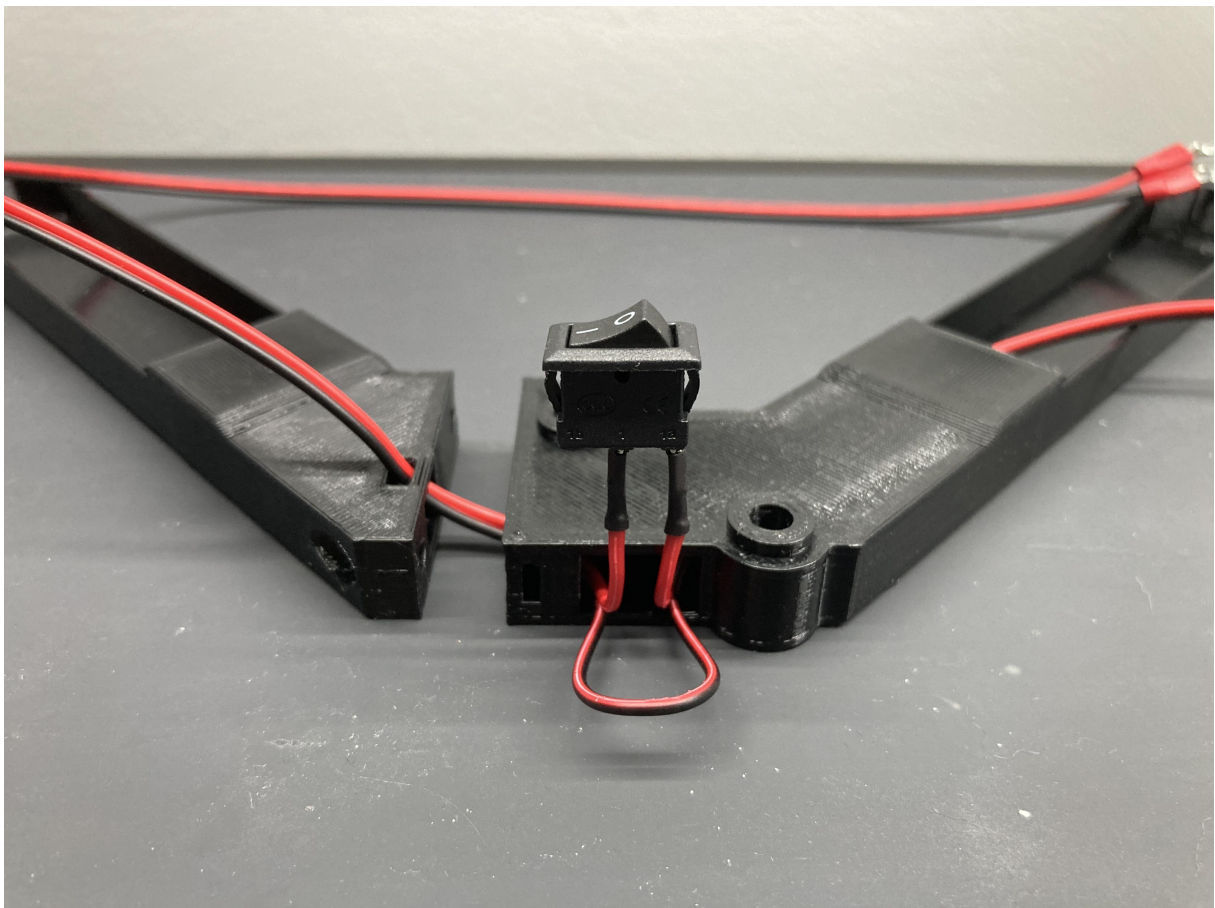
Wire inserted

Power Switch Wiring

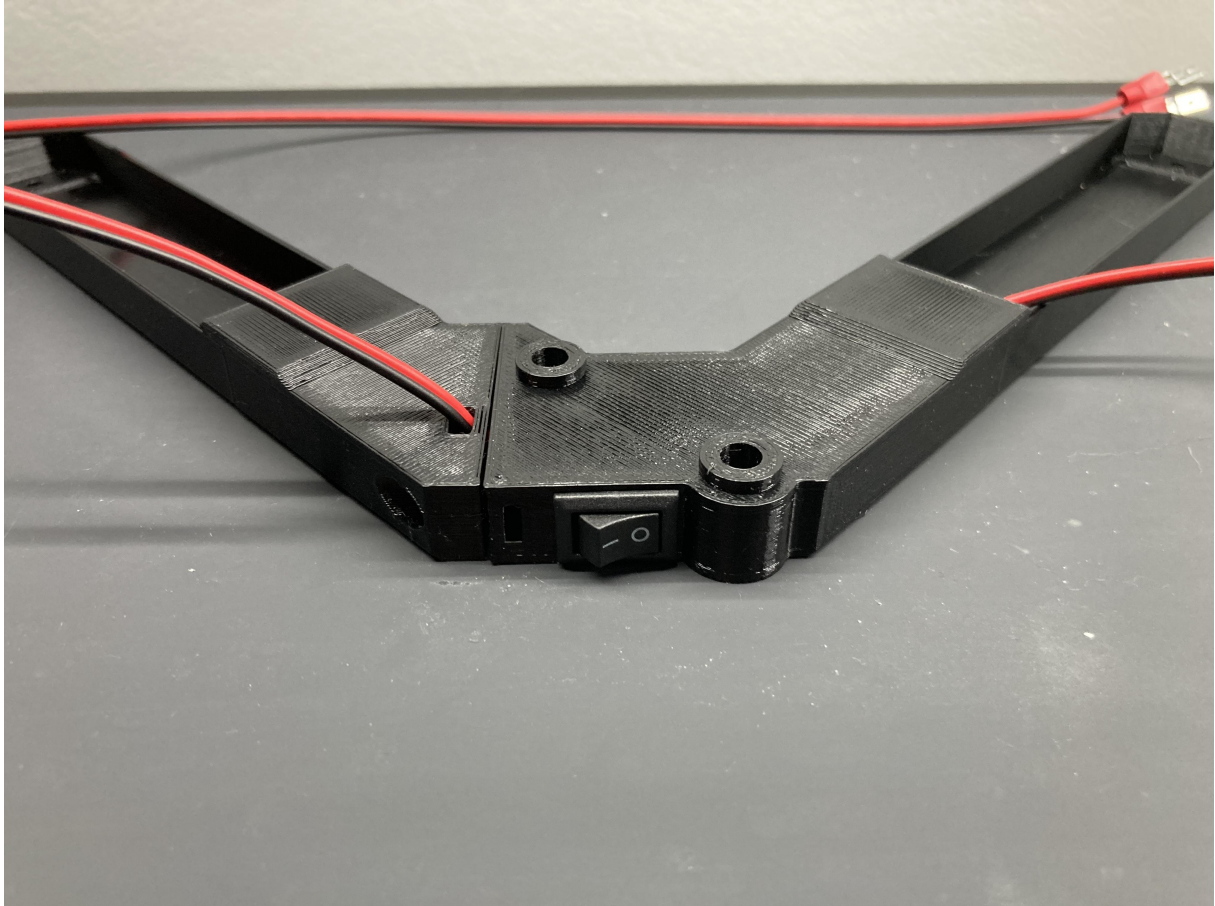
1. Cut the red wire for the power switch. Be careful when cutting not to also cut through the back wire insulation. Pull back the red wire and strip off the ends.
2. Solder the power switch to the red wires. Verify switch orientation with picture below. If using heat shrink, place it over the wires before soldering the power switch. For best soldering results, tin the wires and switch terminals with solder first, then join together.
3. Insert the power switch into the opening. Pull the wire on either end to remove any slack. The power switch needs to be 10x15mm to fit in the provided opening.



Cut wire for switch



Solder switch



Insert switch

Front LED Strip Wiring

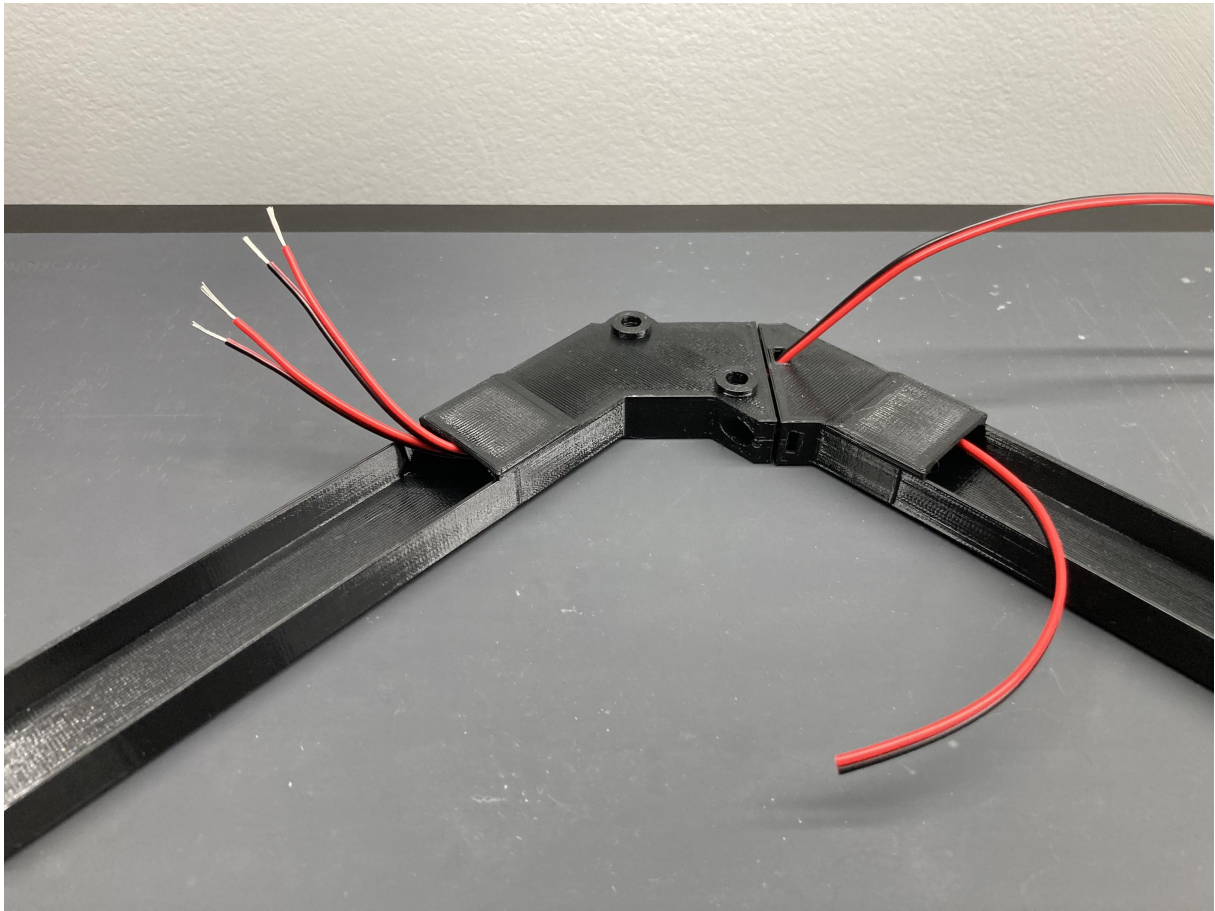
1. Cut the wire so that there is about 5cm (2") sticking out the end of the front housing and strip about 1cm (1/2") off the ends of the wires.
2. Take the piece of wire you just cut off and insert it back through the front housing out the opening in the rear housing. Strip about 1cm (1/2") off the ends of this wire.
3. Twist the stripped ends of the wires together, red to red and black to black, and add solder to hold them together.
4. Solder the twisted together wires to the front LED, red to + and black to -. For best soldering results, tin the LED pads with solder first and then join with the already tinned wires. You can also trim off the tips of the already tinned wires to make the connection cleaner.
5. Put the heat shrink in place and apply heat.
6. Remove the adhesive cover from the LED strip and stick it to the inside of the u-channel.

7. Attach the cover to the u-channel and insert into the light bar housing. Pull on the wire exiting the rear housing while guide the u-channel in. Fold the other wire that attaches to the switch for easier insertion.

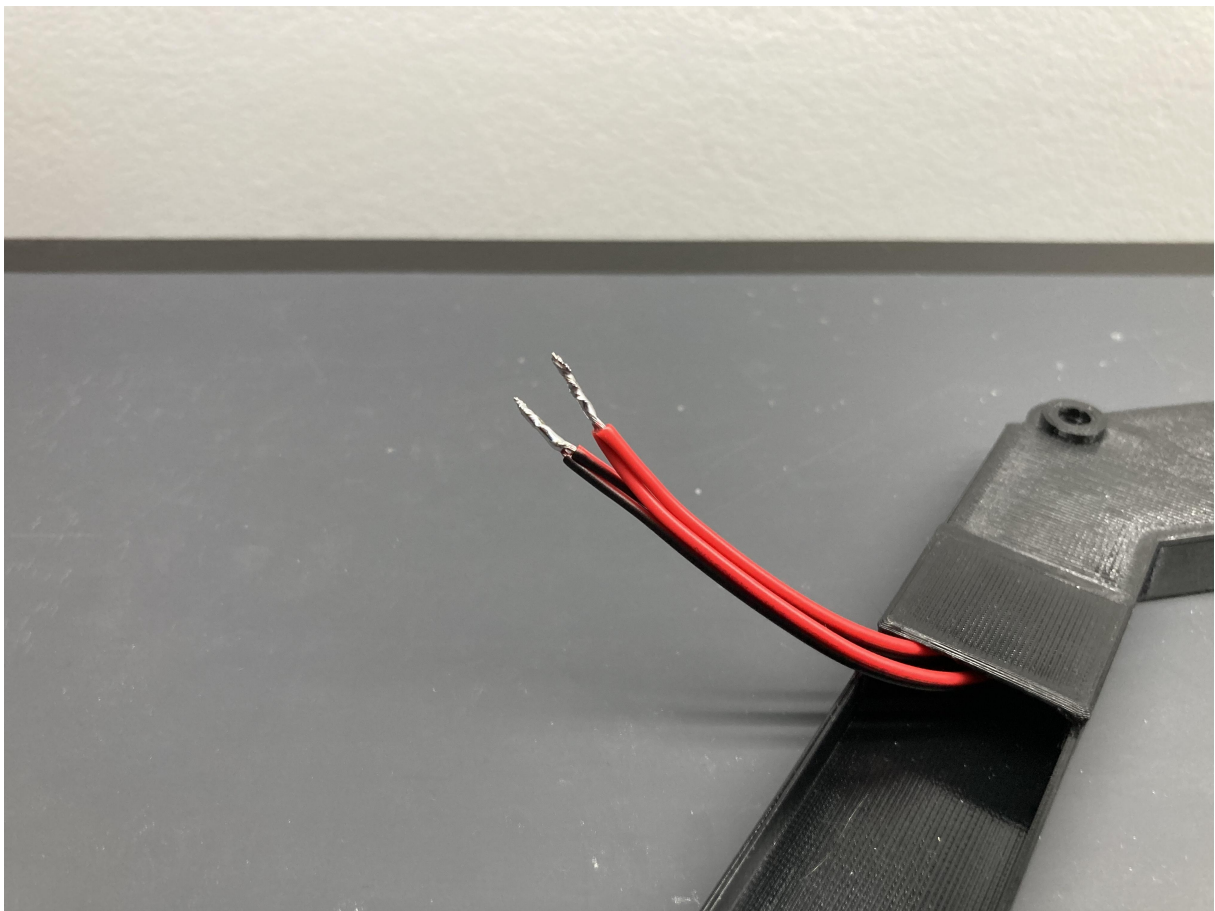
8. Insert the square nut into the slot in the printed cap and put it in place. Secure it with 1 of the countersunk screws. You can also use an M3 cap head screw up to 10mm here if you don't have countersunk screws.



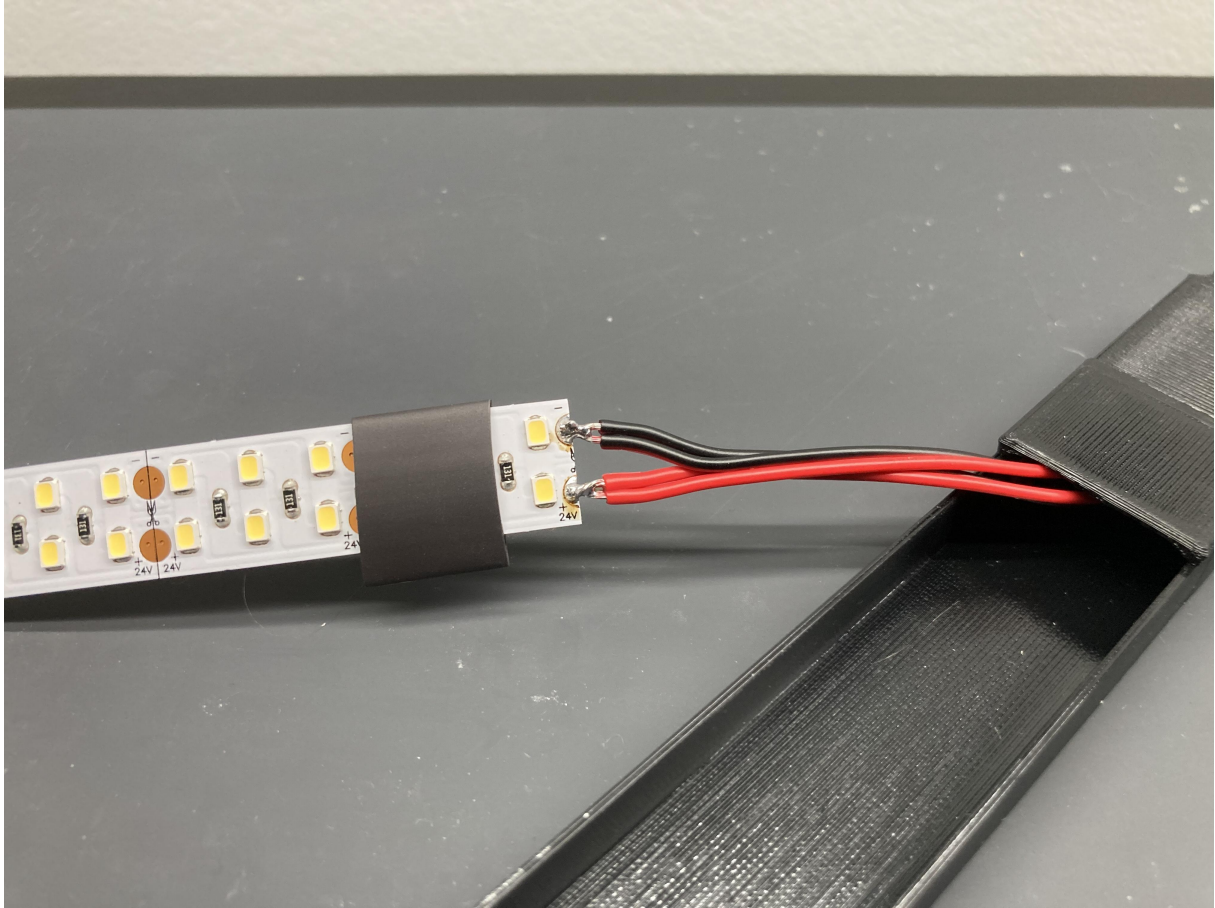
Strip LED wire



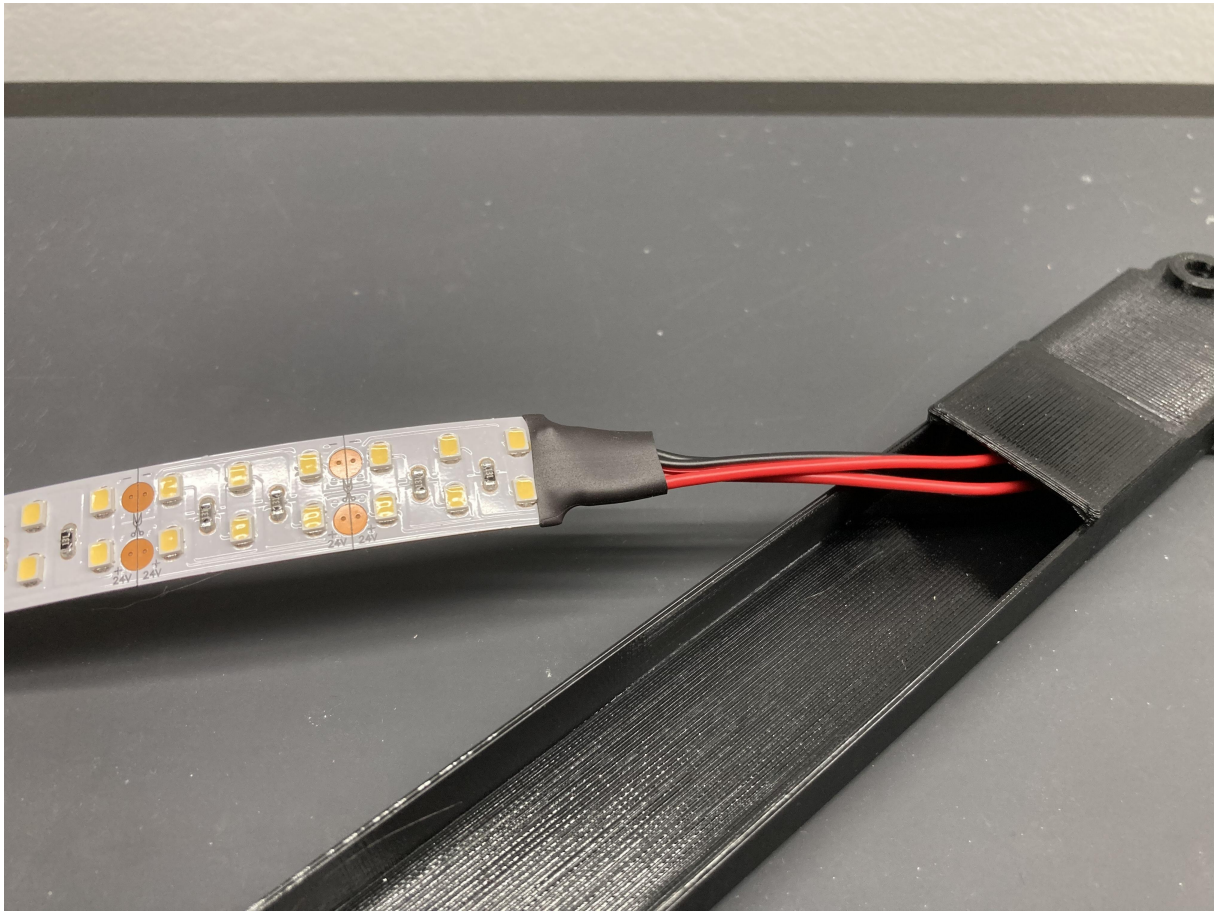
Strip second LED wire



Twist LED wires



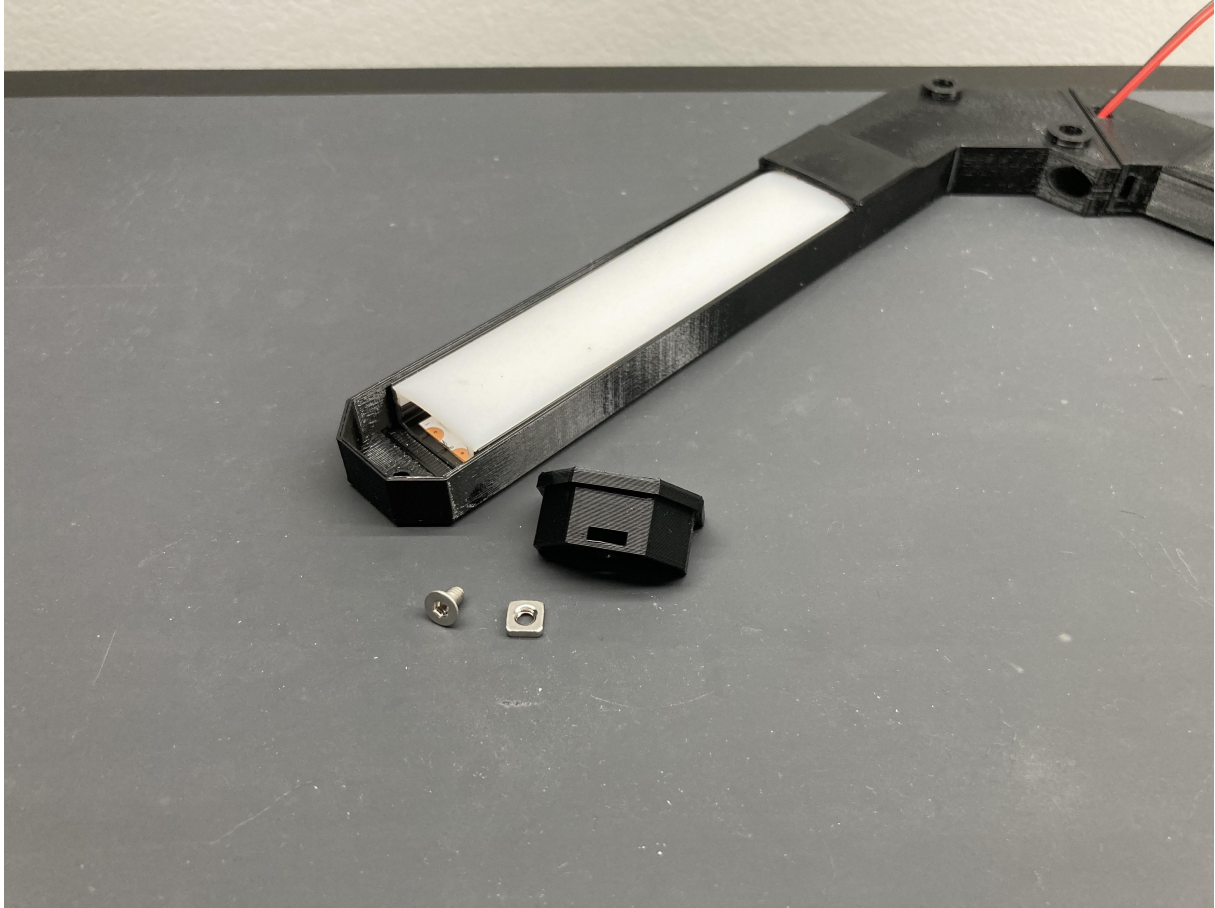
Solder LED strip



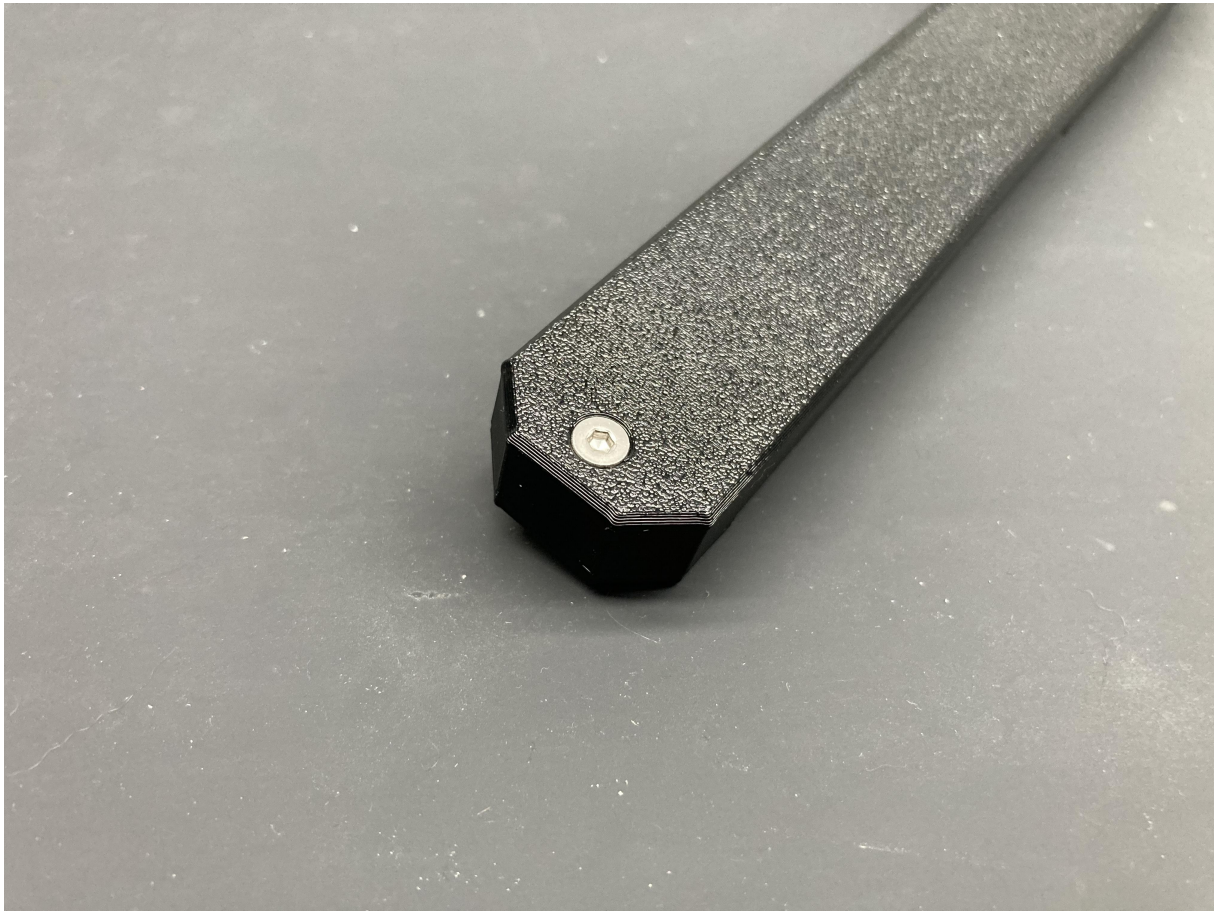
Heat shrink



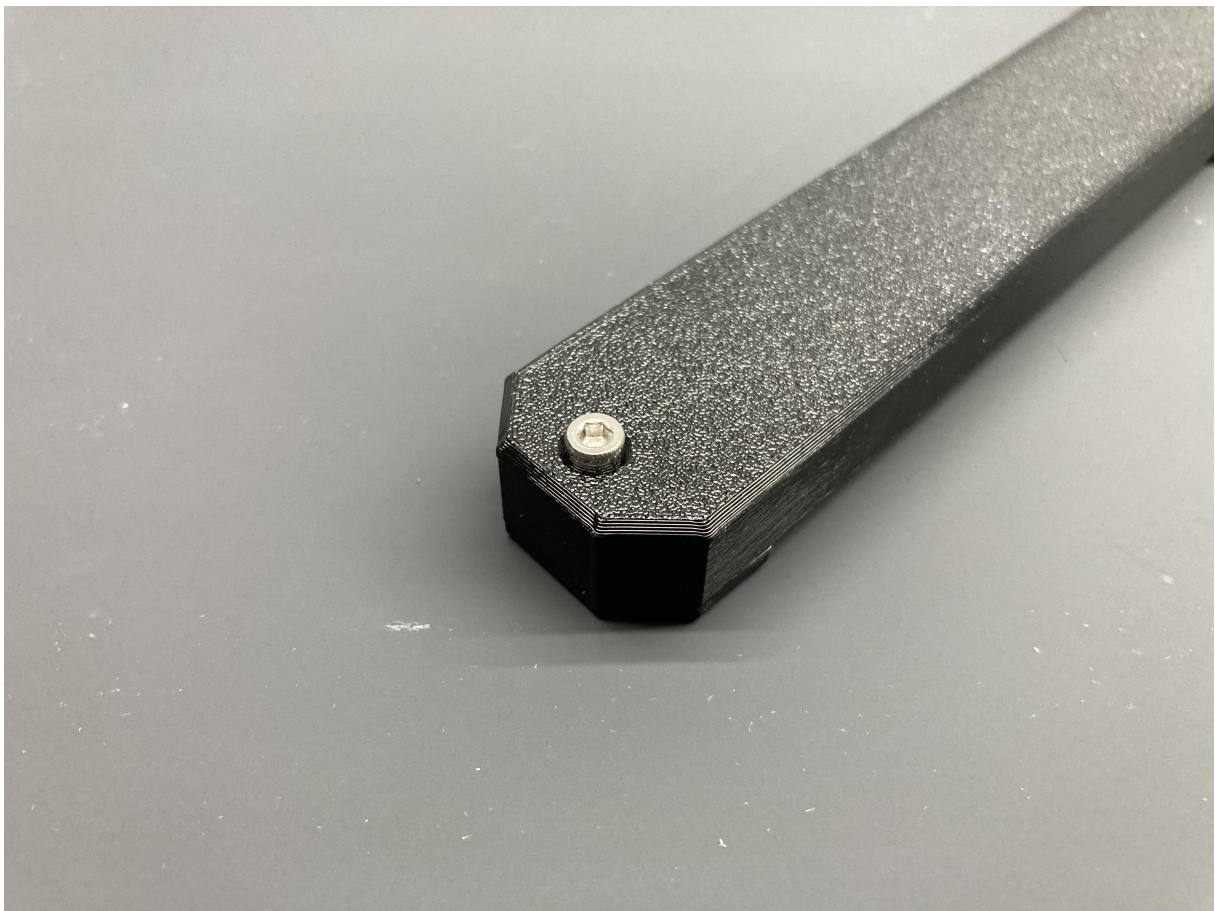
Installed LED strip



Front LED installed



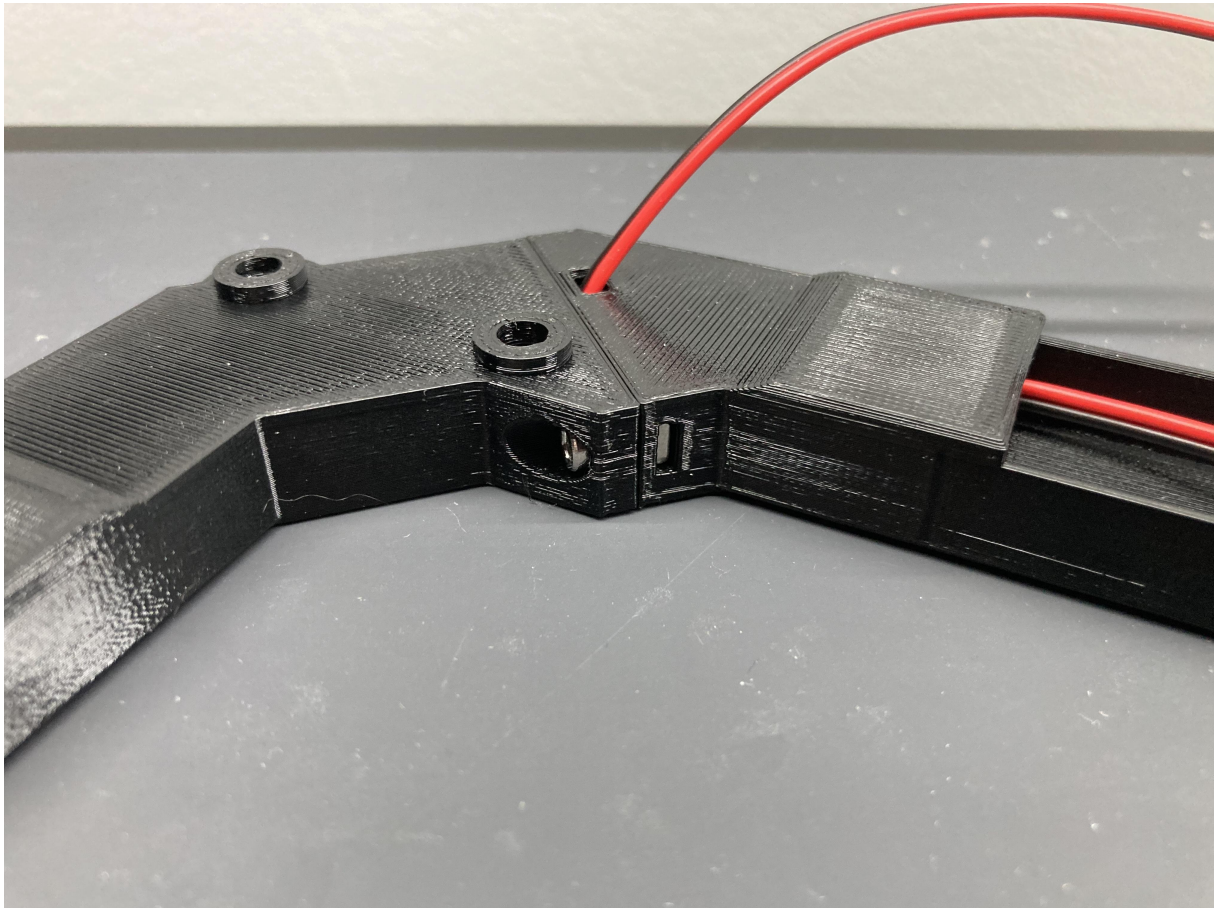
Countersunk Screw



Cap Head Screw (Fits up to 10mm)

Join Front and Rear Housings

1. Insert the M3 square nuts into the slots on either side of housings where they join. Using 2 M3 x 10mm cap head screws, join the front and rear housings.

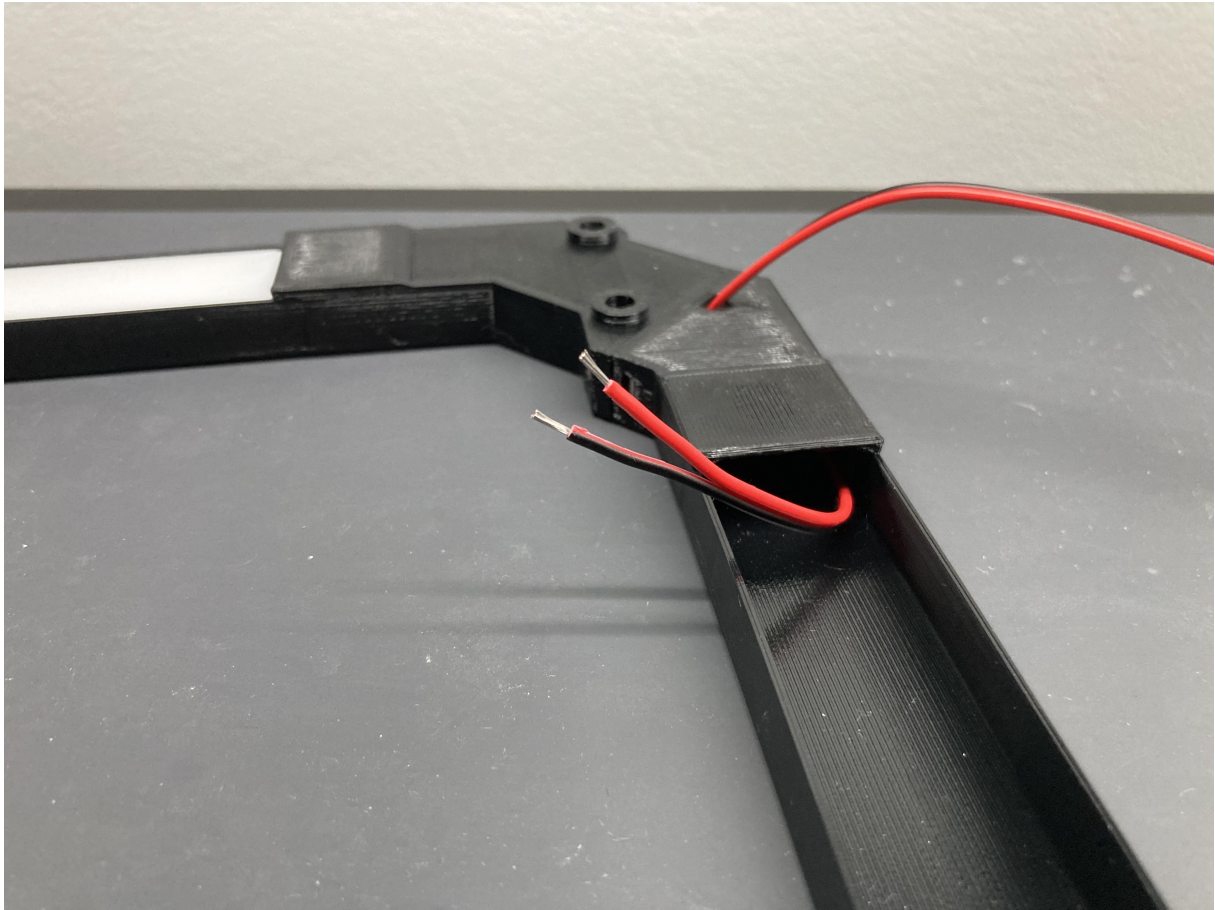


Join front and rear housings

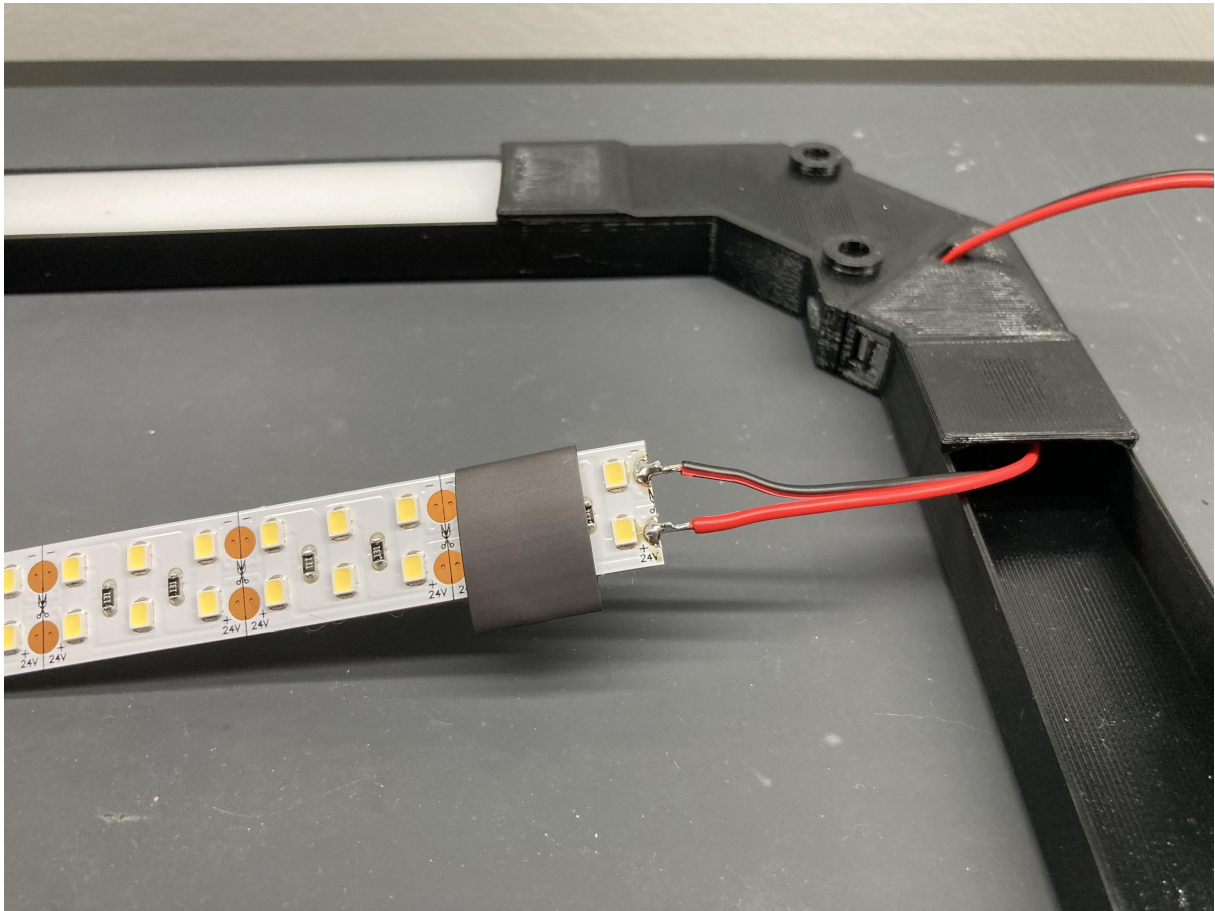
Rear LED Strip Wiring

1. Cut the wire so that there is about 5cm (2") sticking out the end of the rear housing and strip the ends of the wires.
2. Solder the wires to the rear LED, red to + and black to -. For best soldering results, tin the LED pads and wires with solder first and then join them together.
3. Put the heat shrink in place and apply heat.
4. Remove the adhesive cover from the LED strip and stick it to the inside of the u-channel.

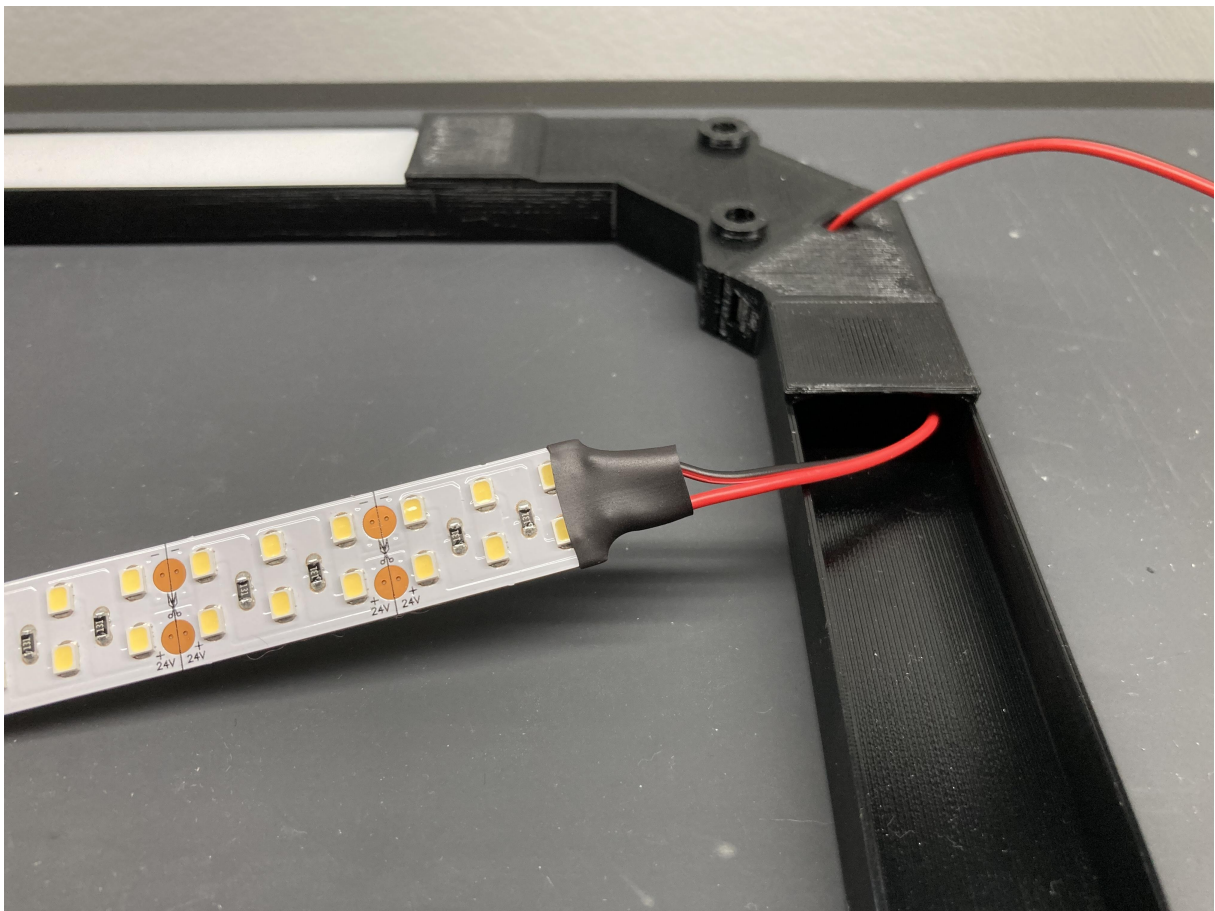
5. Attach the cover to the u-channel and insert into the housing. Fold the wire for easier insertion.
6. Insert the square nut into the slot in the printed cap and put it in place. Secure it with the remaining countersunk screw. You can also use an M3 cap head screw up to 10mm here if you don't have countersunk screws.



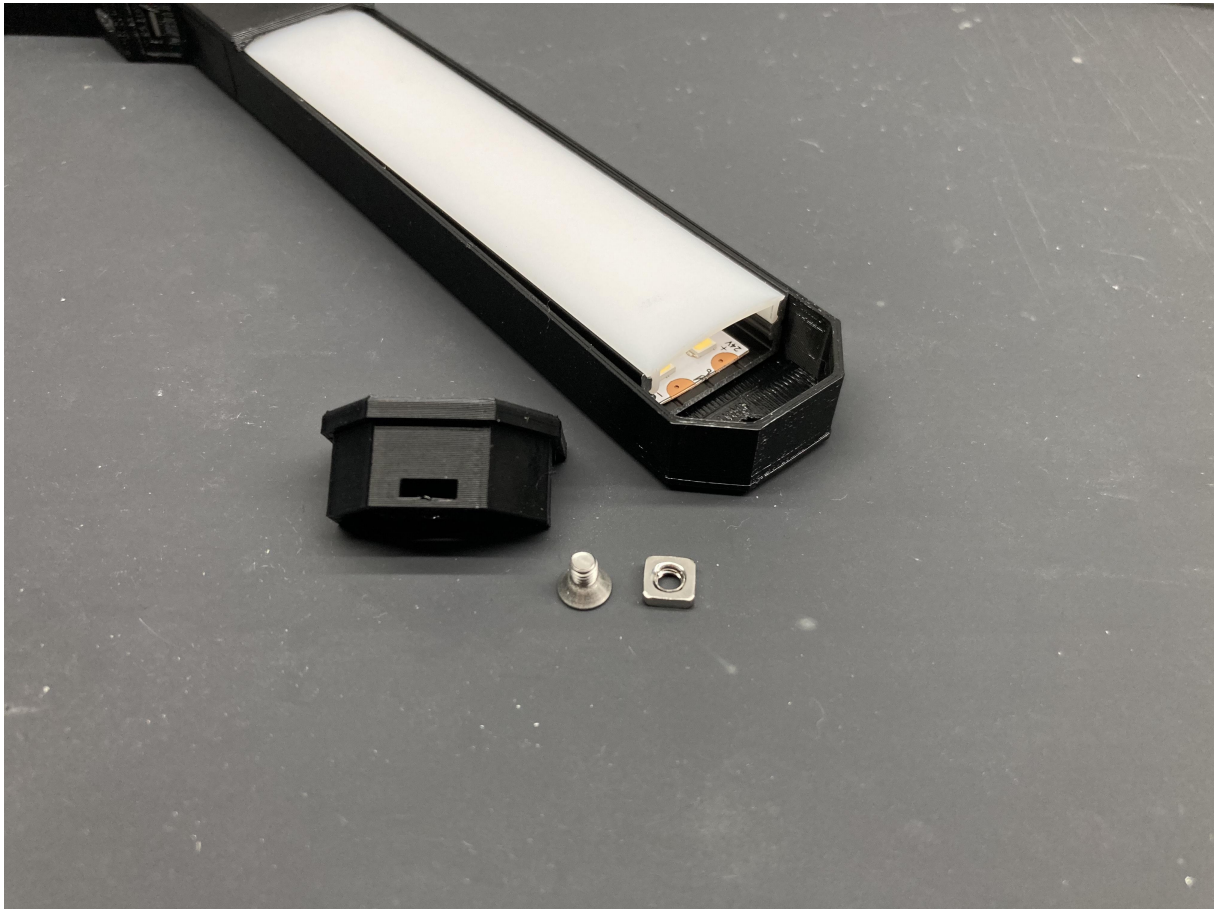
Strip LED wire



Solder LED strip



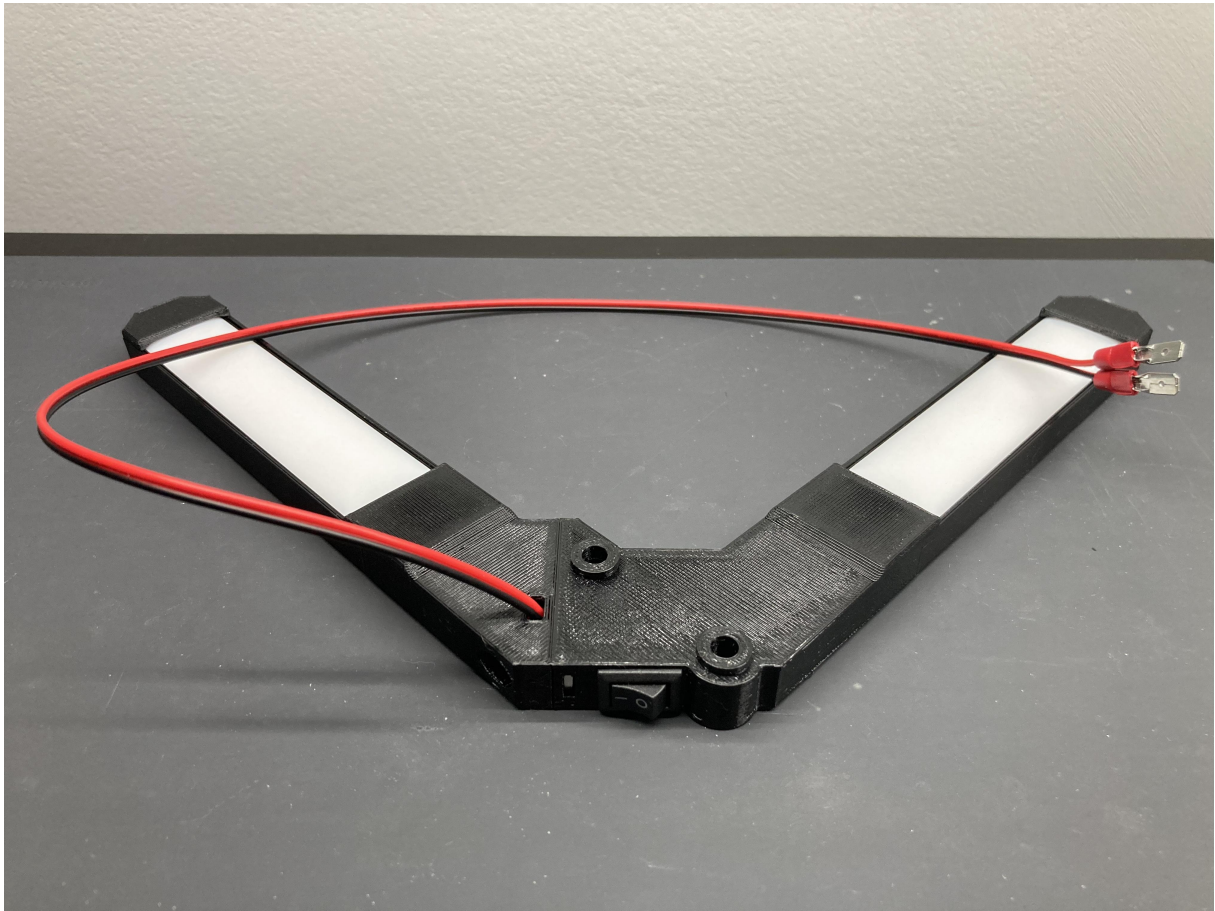
Heat shrink



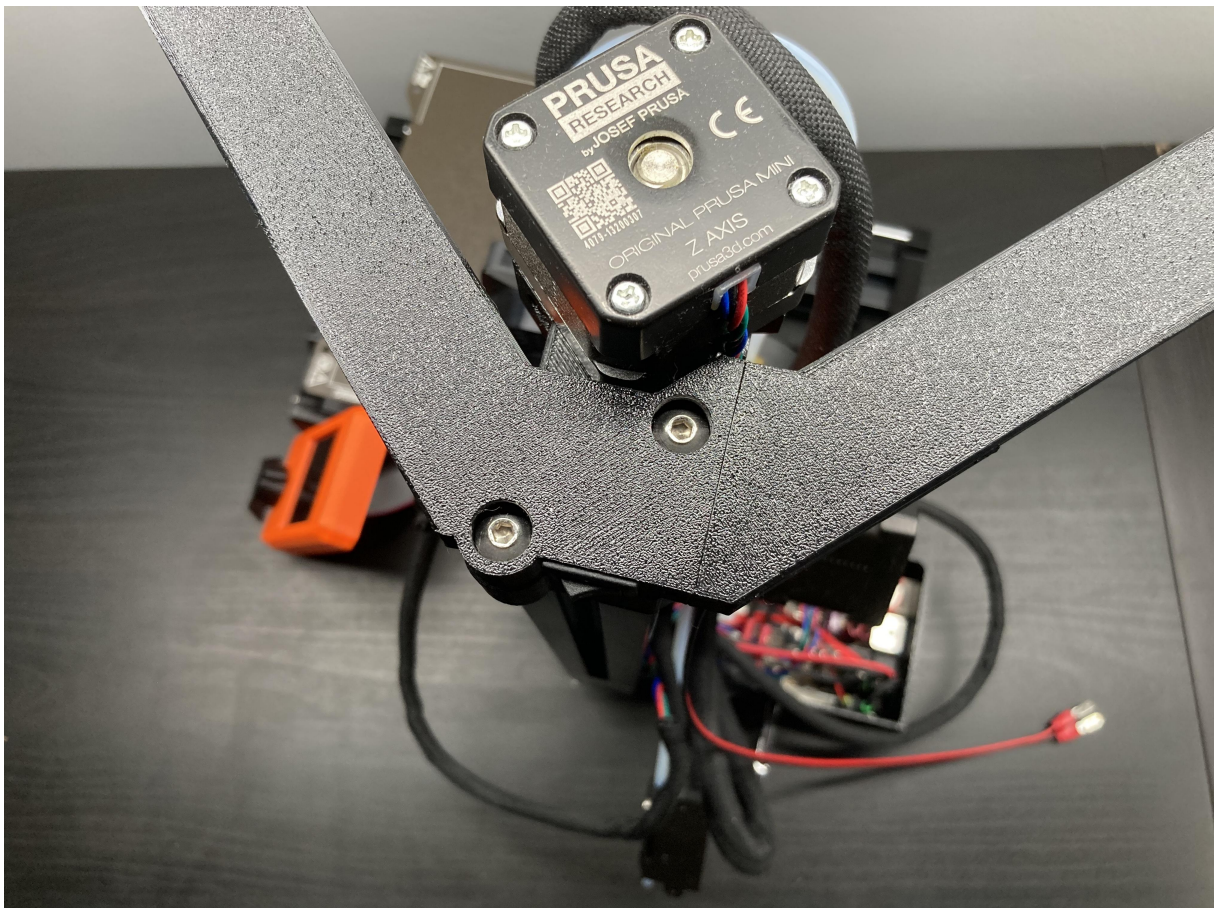
Installed LED strip

Final Assembly

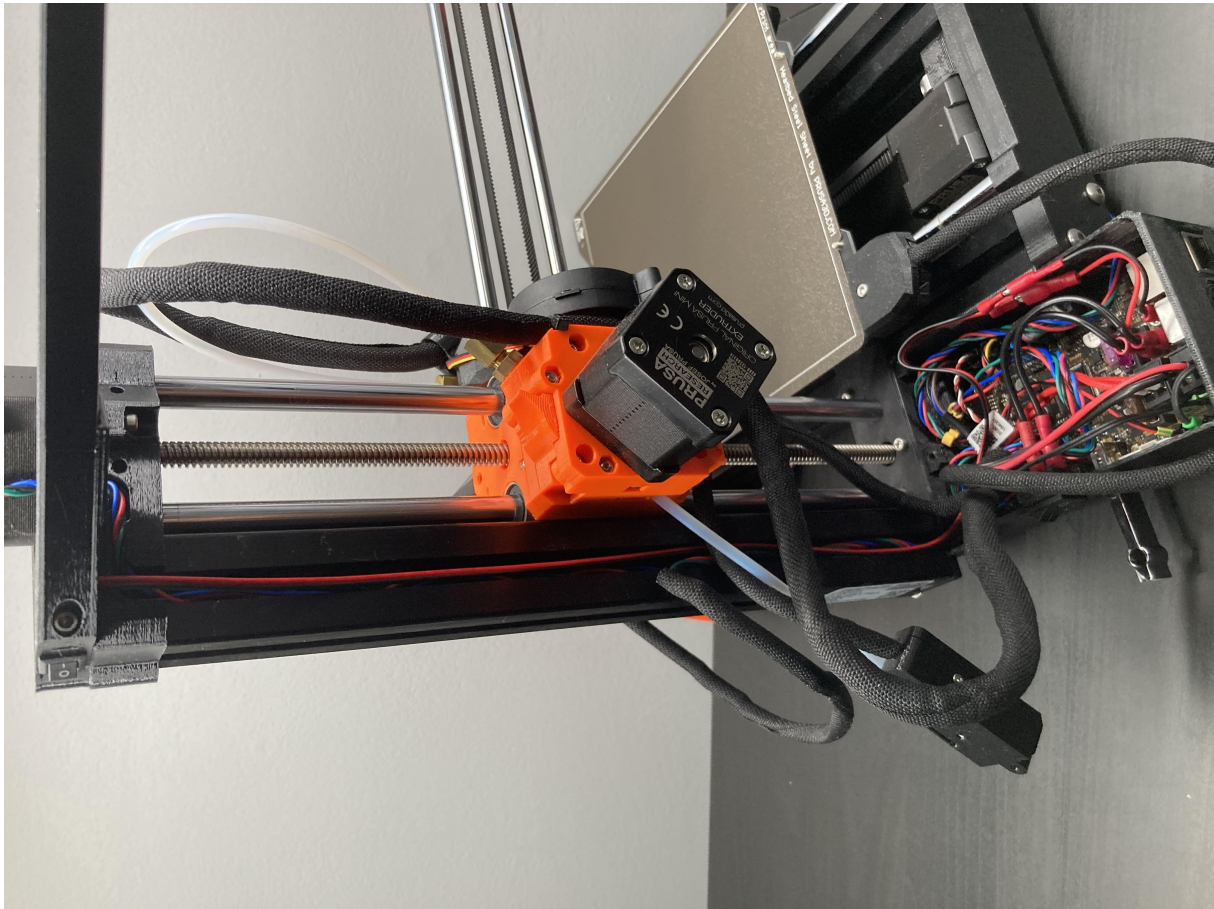
1. If you didn't purchase the hardware kit, you will need to install the male spade connectors. Strip the ends of the red and black wires and crimp male spade connectors to them.
2. Remove the 2 screws from the z-axis top piece on the MINI. Place the light bar on top of the z-axis. Install the 2 M5 x 30mm button cap screws to hold the light bar in place.
3. Open the electronics case cover and remove the slot covers from the vertical extrusion. Run the wire down the slot and reinstall the slot covers.



Completed assembly



Z-axis screws



Wire run

Power Connection

Option 1: Printer Power Supply

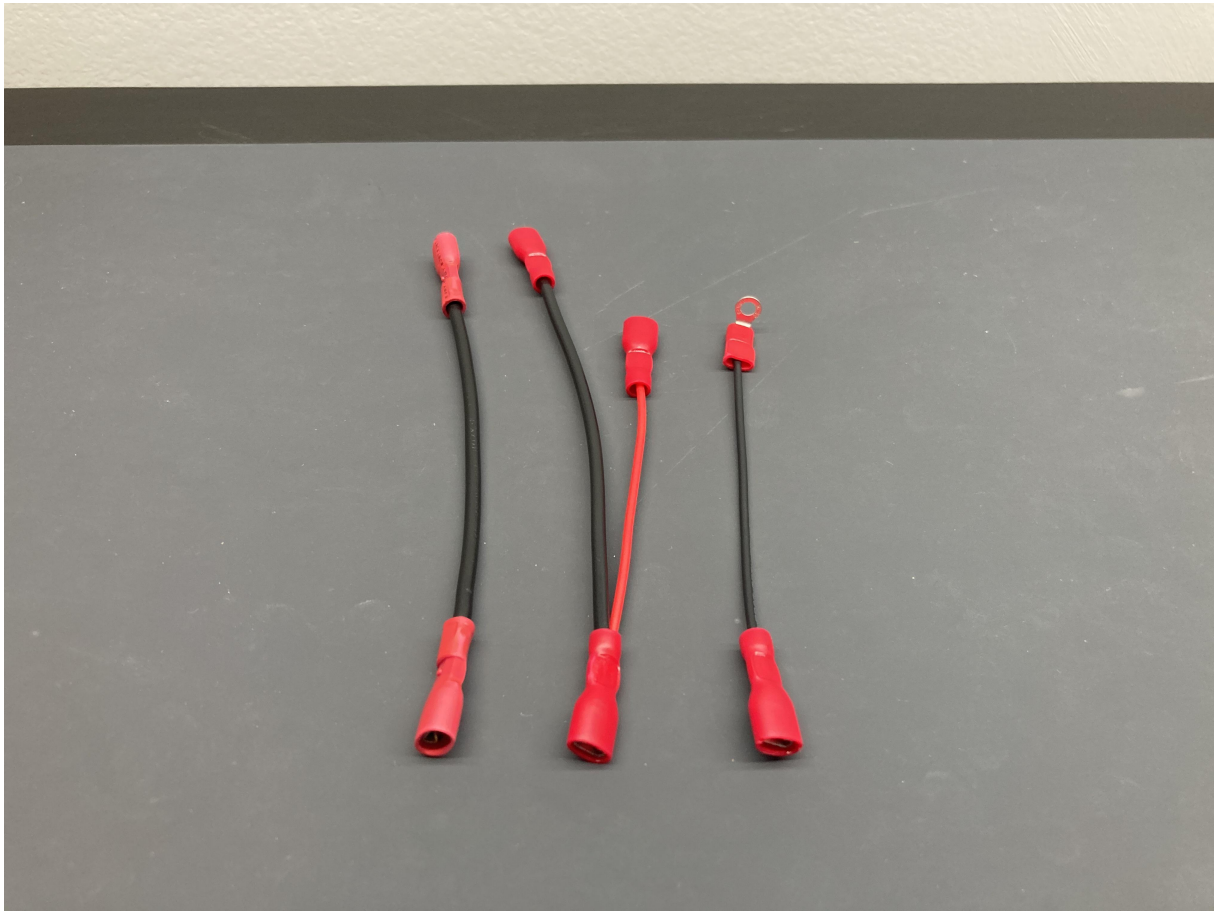
This option for powering the LEDs ties into the MINI's power supply to provide 24V. This method does not permanently modify the printer and is completely reversible. Using this method you may notice a very faint pulsing in the LED brightness as the heat bed turns on and off during printing. This is due to the power draw of the heat bed causing voltage fluctuations. If you are sensitive to this, consider power option 2 using an external power supply, or Printables user [@RetroModder_310561](#) has developed a dimmer circuit board that also fixes the LED flickering. The circuit board can be purchased from their [Etsy store](#).

To tie in to +24V, we will add a pigtail to one of the wires going to the MINI's power switch. These wires can be removed and replaced with a wire that has the pigtail installed. You can replace either wire, the one nearer the back of the printer will provide 24V even with the printer turned off, the wire nearer the front of the printer will only provide 24V if the printer is turned on. I prefer to replace the wire nearer the back.

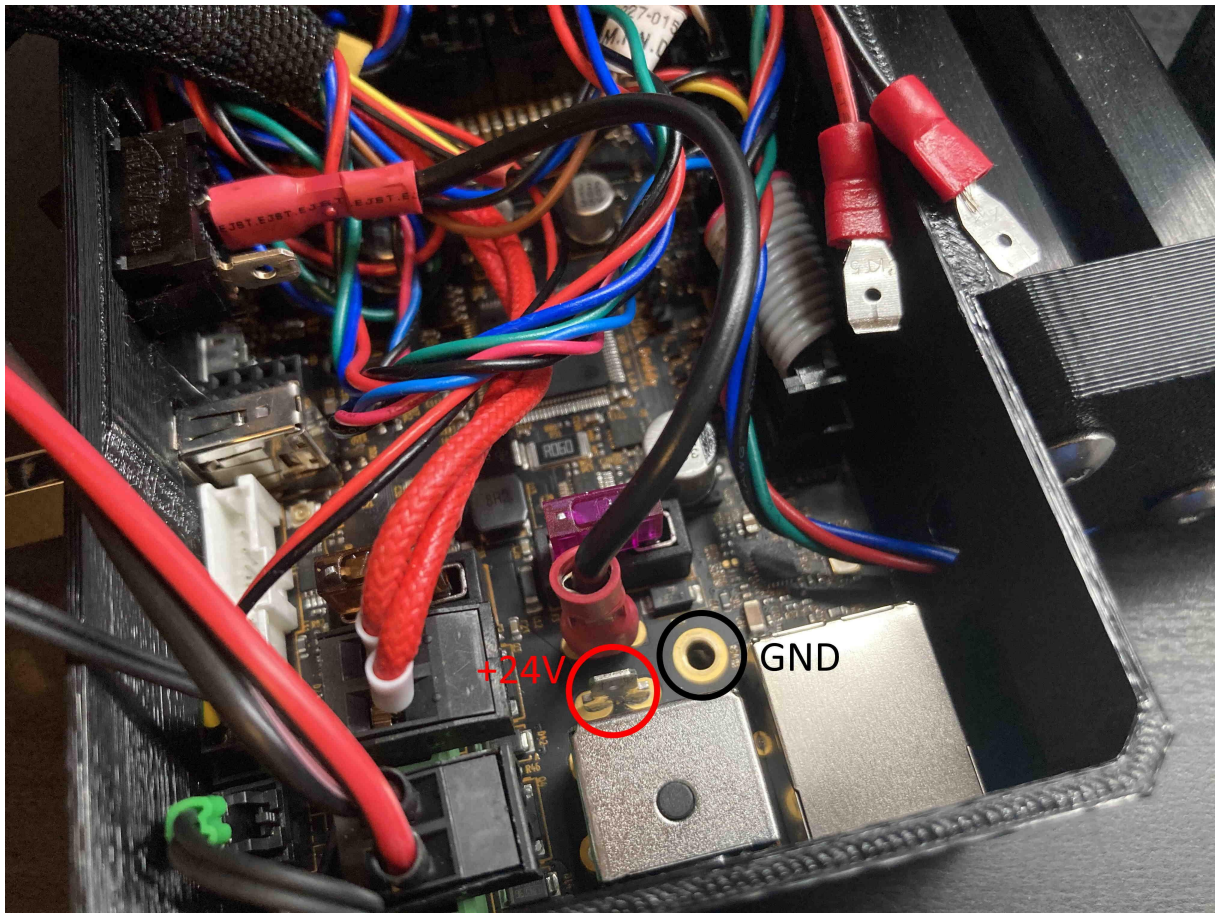
To tie in to ground, we will install a ring terminal around the M3 screw that is right next to the terminals that go to the printer power switch. The exposed pad underneath this screw is connected to the ground plane of the PCB.

If you purchased the hardware kit, you can skip to step 6 as these wires will come pre-assembled.

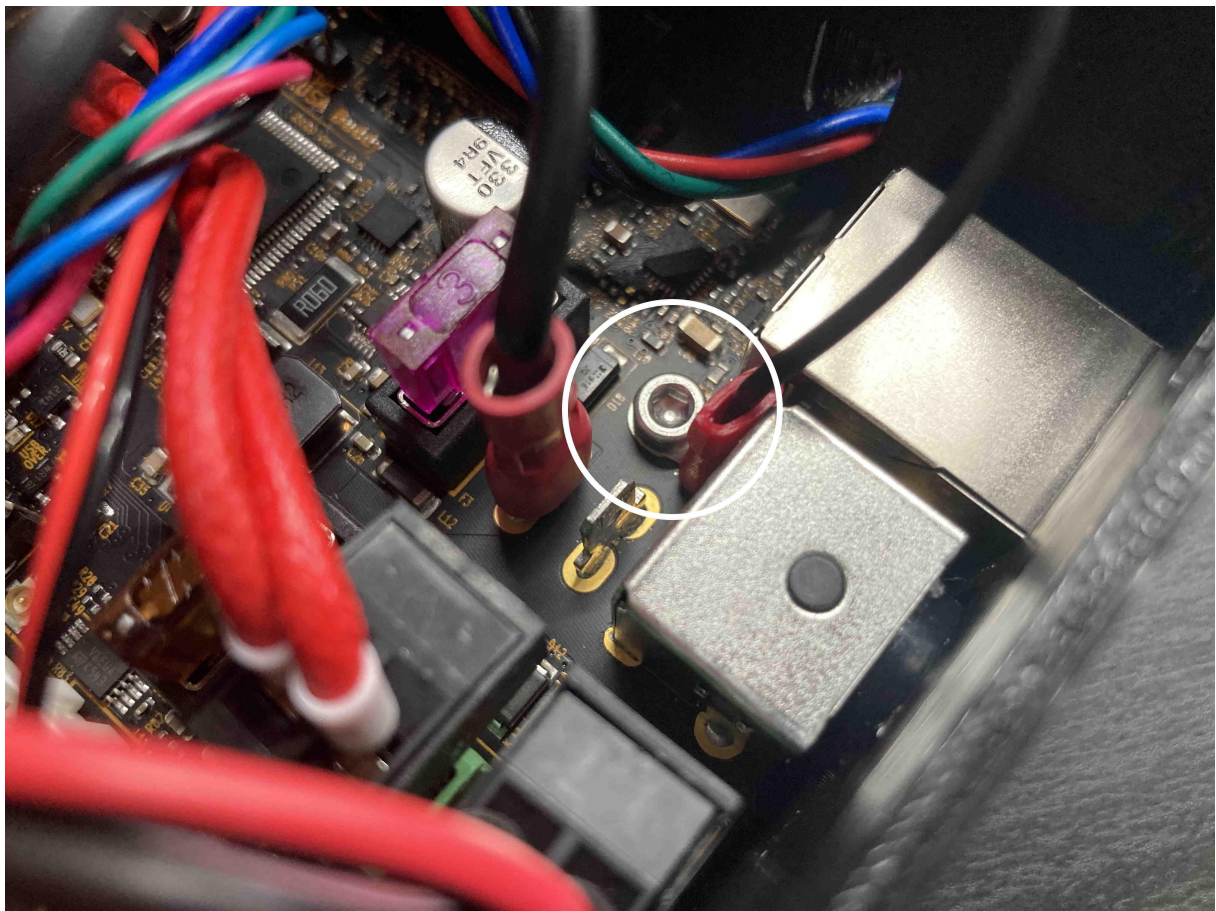
1. Cut the 16 AWG wire to 11.5cm (4.5") and strip the ends.
2. Cut the red 22 AWG wire to 9cm (3.5") and strip the ends.
3. Cut the black 22 AWG wire to 9cm (3.5") and strip the ends.
4. Twist one end of the red wire around one end of the 16 AWG wire. Insert the twisted wires into a female spade connector and crimp it. Crimp female spade connectors to the other ends of the red 22 AWG and 16 AWG wires. Tug on the wires to make sure they are secure.
5. Crimp a female spade connector to one end of the black 22 AWG wire. Crimp an M3 ring terminal to the other end of the black 22 AWG wire. Bend the ring terminal to form a right angle.
6. **IMPORTANT:** Make sure the power supply is unplugged from the printer before continuing. Unplugging the AC wall plug is not enough, the DC power connector needs to be unplugged from the printer.
7. Remove one of the wires going from the PCB terminal to the power switch and replace it with the switch wire with the +24V pigtail. If you have trouble removing the wire connector from the power switch terminal, it may be easier if you remove the power switch from its hole. Use some pliers to compress the switch tabs to remove it from its hole.
8. Remove the M3 screw next to the wire you replaced and insert the screw through the ring connector. Reinstall the screw and make sure the ring connector does not make contact with any other components on the PCB. Make sure the screw is tight to give the ring connector good contact with the PCB pad.
9. Insert the male spade connectors from the light bar to the female connectors you just installed, red to red and black to black.
10. Tuck the wires into the electronics case and install the cover.
11. Plug in the printer and test the LED lights. Depending on which switch wire you replaced, you may need to power on the printer first.



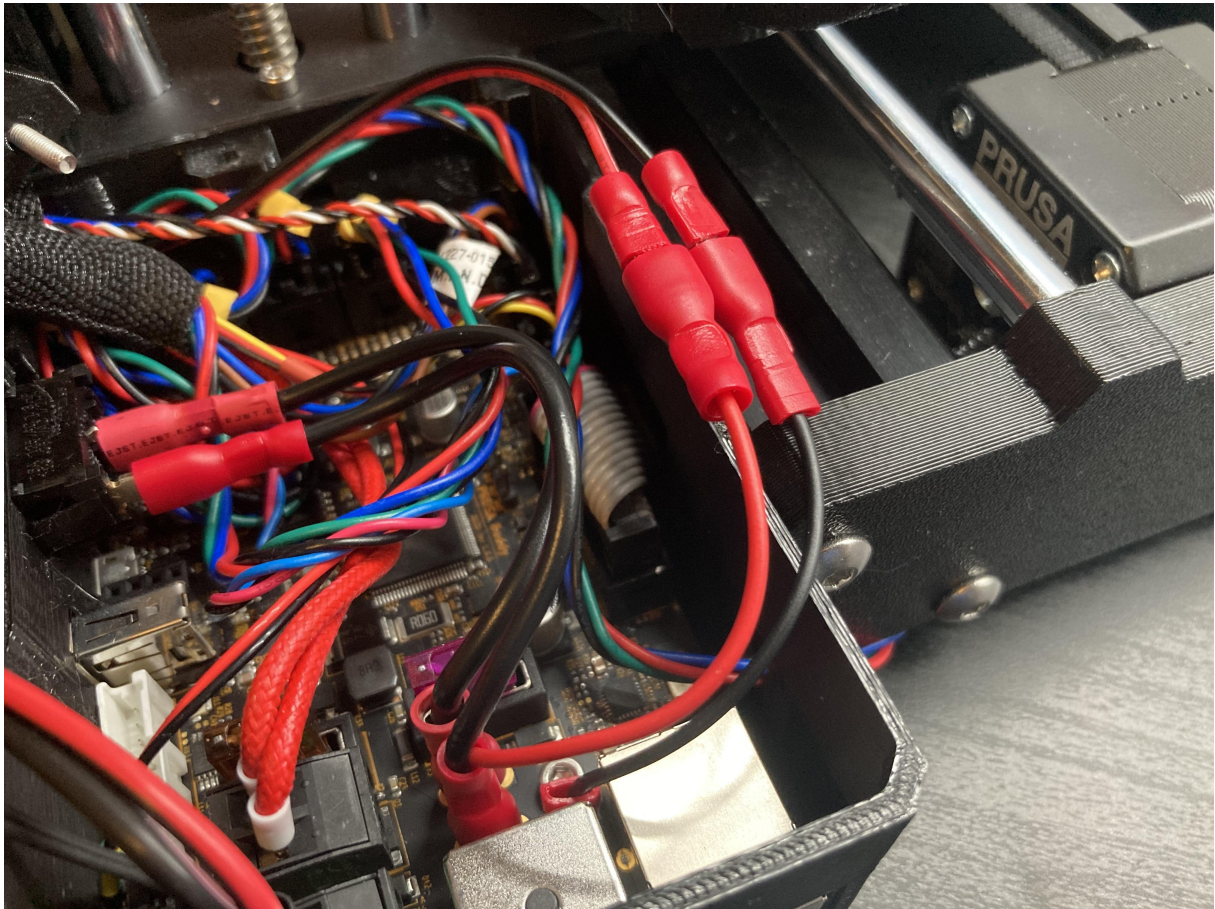
Wire comparison (from left to right, old switch wire, new switch wire with LED +24V pigtail, LED ground wire)



Power tie-in points



Ground screw



Power wires installed

Option 2: External Power Supply

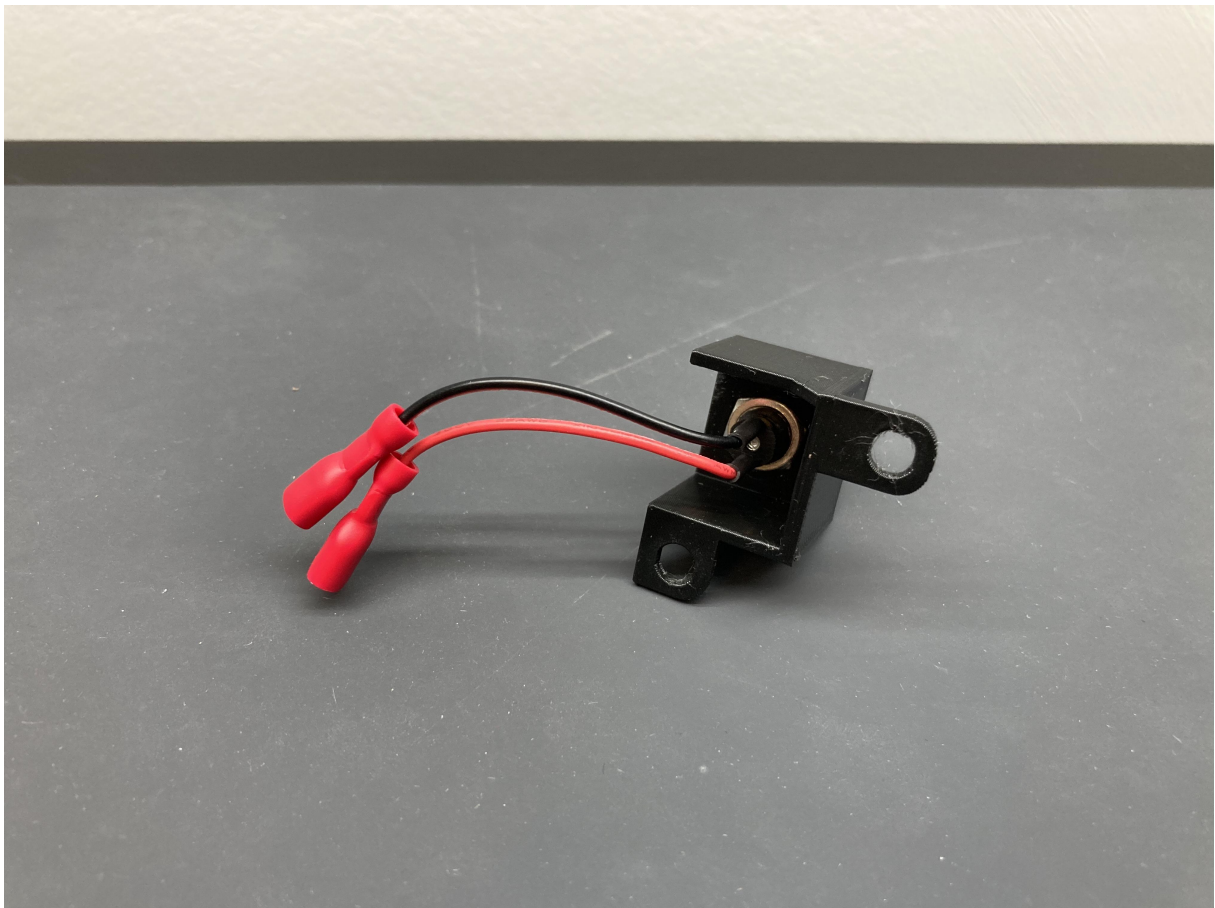
This option for powering the LEDs uses an external 24V DC power supply. Use this option if you do not want to use the first option. The LEDs in the hardware kit draw 5W of power, so a 24V 1A power supply will be sufficient.

Purchase external power kit [here](#).

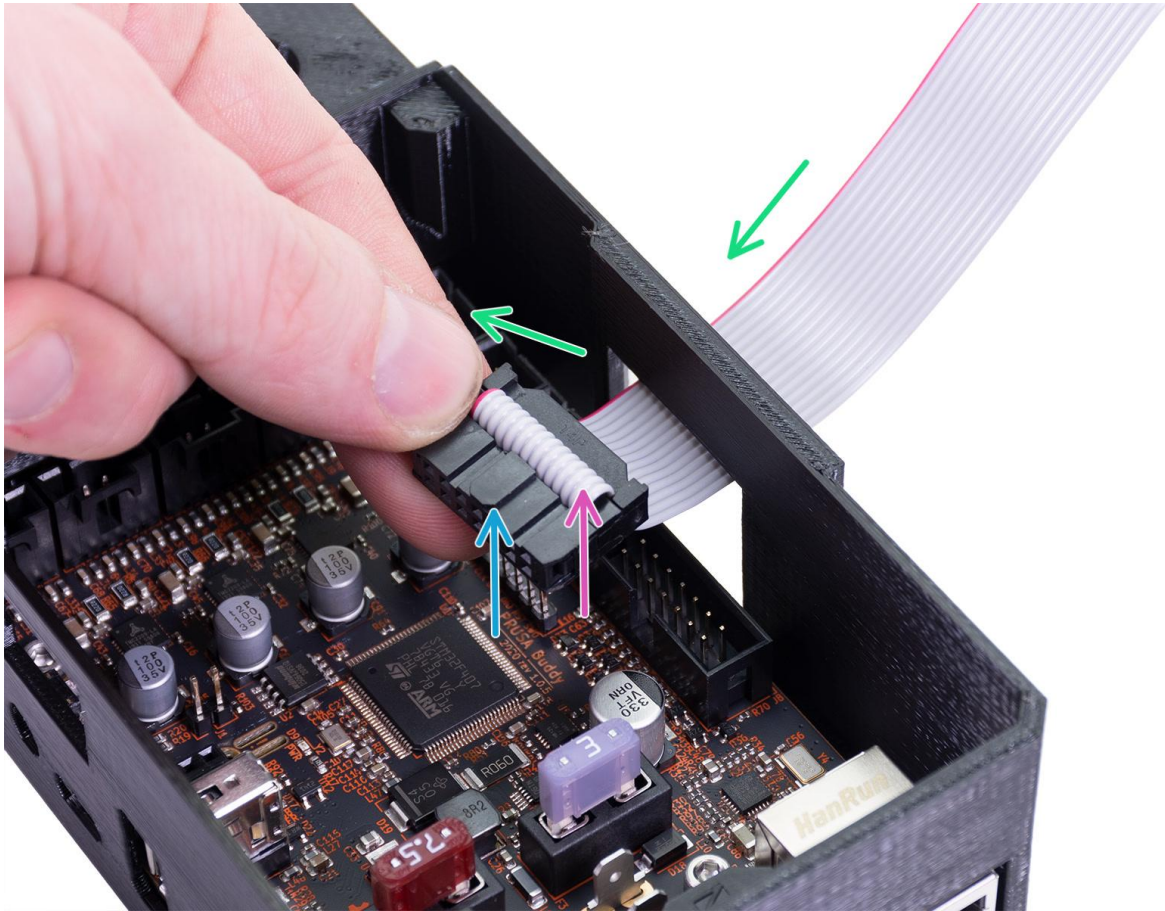
If you purchased the external power kit you can skip to step 6.

1. Print the external power box.
2. Cut red and black 22 AWG wires to 15cm (6")
3. Solder the red and black wires to the DC power jack and install heat shrink. The longer terminal on the power jack will be the ground terminal if you are using a typical positive center pin power supply. Use a multimeter to check if you are unsure.

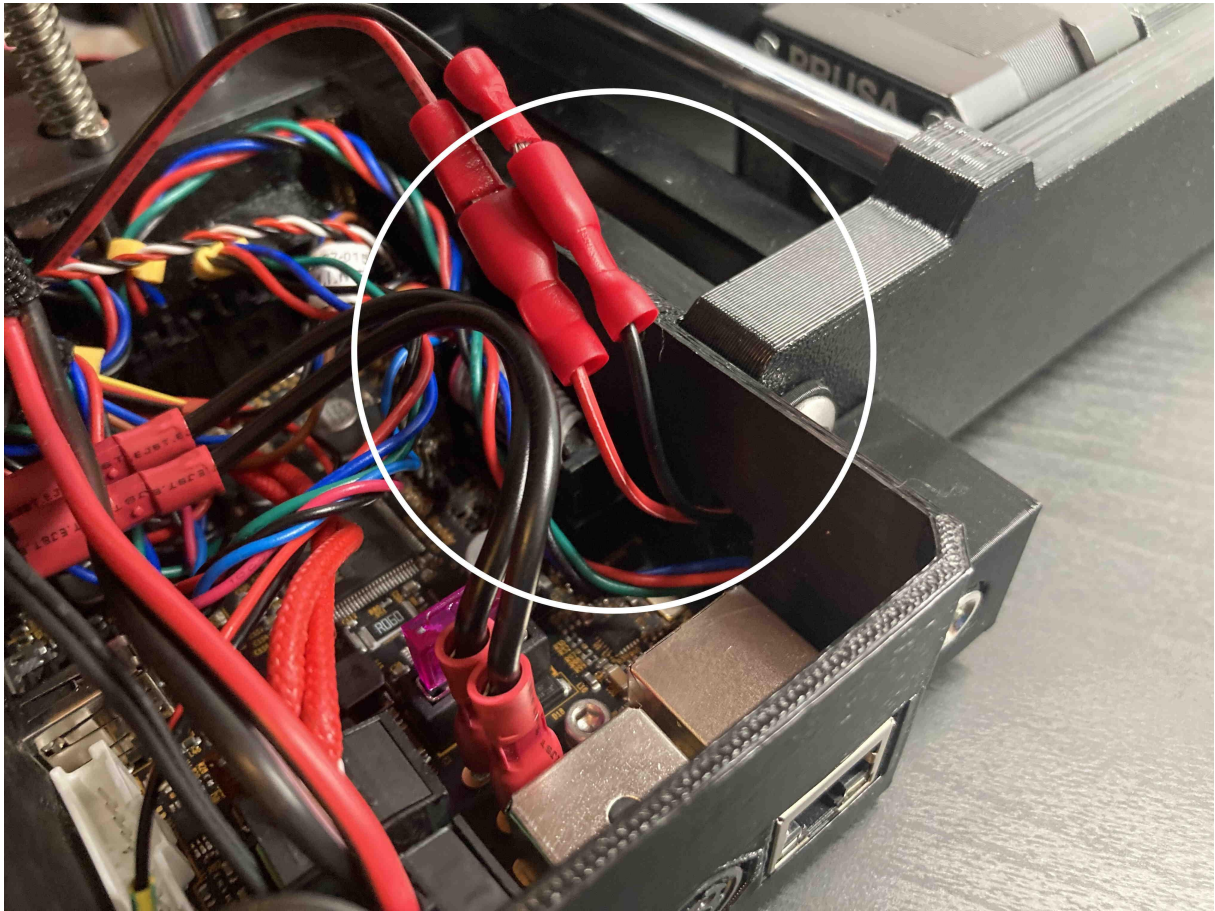
4. Insert the DC power jack into the printed housing and install the power jack nut to hold it in place.
5. Crimp female spade connectors to the red and black wires. Make sure the power jack nut is installed as the nut cannot fit over the female spade connectors.
6. Remove the electronics case cover.
7. Remove the two screws holding the rear printer frame to the extrusion next to the electronics case.
8. Insert the red and black wires through the hole that the display cable goes through into the electronics case on the MINI+. On the original MINI use the hole that the y-axis motor cable goes through.
9. Reinstall the two screws you removed, using them to attach the printed housing to the frame.
10. Insert the male spade connectors from the light bar to the female connectors you just installed, red to red and black to black.
11. Tuck the wires into the electronics case and install the cover.
12. Plug in a 24V DC power supply and test the LEDs.



External power kit



On the MINI+ insert wires through the same hole as the display cable



External power kit wires entry point for the original MINI



External power kit installed

Model files



MINI Light Bar v2

2 files



mini_light_bar_v2.3mf



mini_light_bar_v2.stl



External Power Box

2 files



external_power_box.3mf



external_power_box.stl



Stand-off for Bondtech Extruder

2 files



stand-off.3mf



stand-off.stl



OLD - MINI Light Bar v1

4 files



mini_light_bar_v1.3mf



cap_v1.3mf



mini_light_bar_v1.stl



cap_v1.stl

Print files



mini_light_bar_v2_02mm_petg_mini_3h27m.gcode

 PET  0.40 mm  0.20 mm  3.45 hrs  43 g  Prusa MINI / MINI+

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