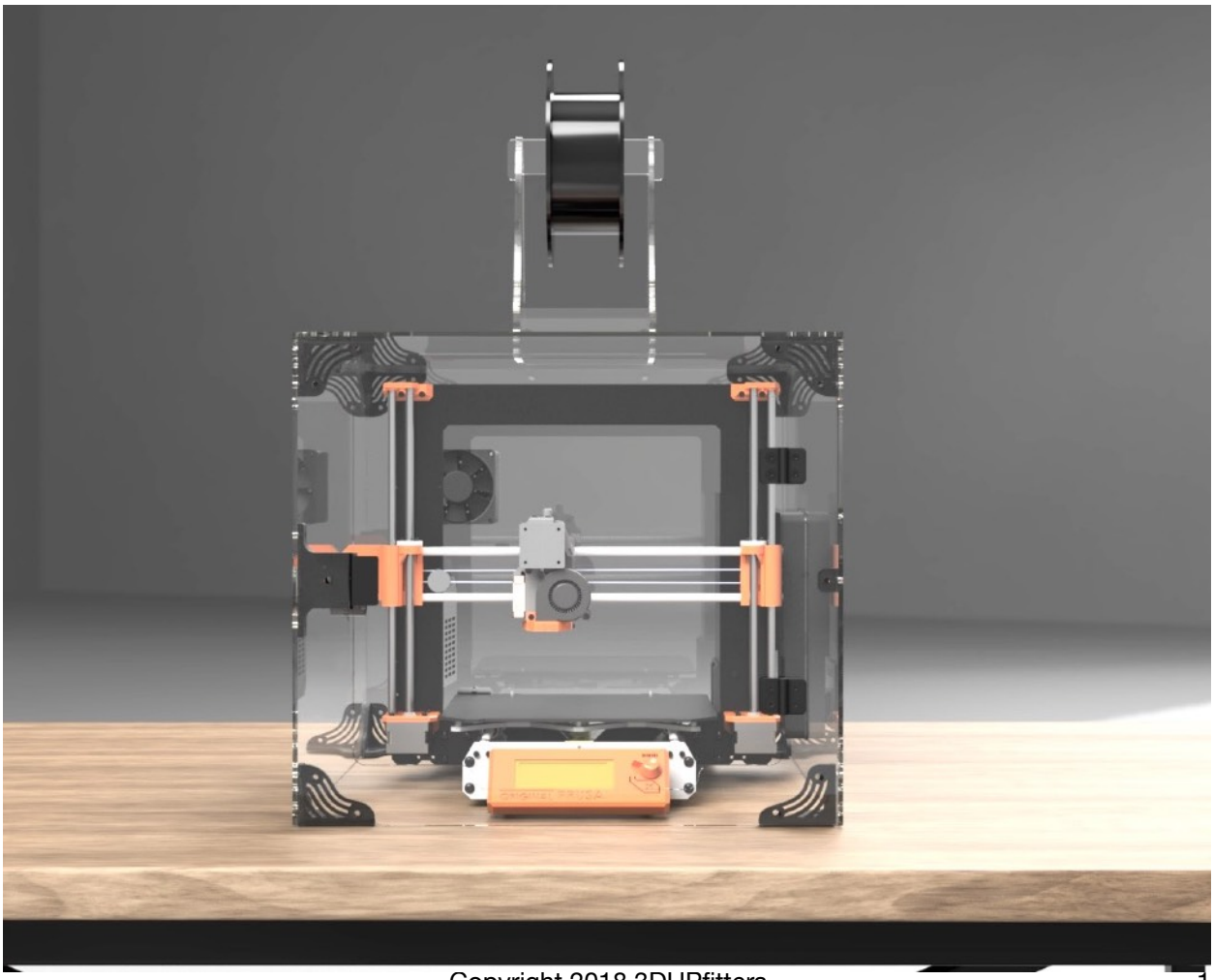
Prusa i3 MK2/3/3S & MMU2/2S Enclosure Kit

Installation Manual 1.3

April, 2019



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You Really Do Want to Read the Directions

Hey, we get it. You just got your new enclosure kit and want to start using it as fast as possible. How hard can assembling a few plastic panels possibly be? It's not really that hard, assuming you're following the directions, but try to use brute force and you'll end up working your way through your vocabulary of swear words. While the acrylic pieces in the kit are strong and difficult to harm if handled correctly, they are still plastic and will break if bent far enough. The ghosts of the broken panels that have gone before you have become much stronger than you could ever imagine, and are whispering into your ear, "just be a little careful".

Before you Start

Is This Manual for *Your* Kit?

This installation manual covers the R3 enclosure design for the Prusa i3 MK2/3 enclosure and the larger MMU2S enclosure. If you have an older version of the enclosure please contact us if you have a question and need an older manual.

Is your Prusa Customized?

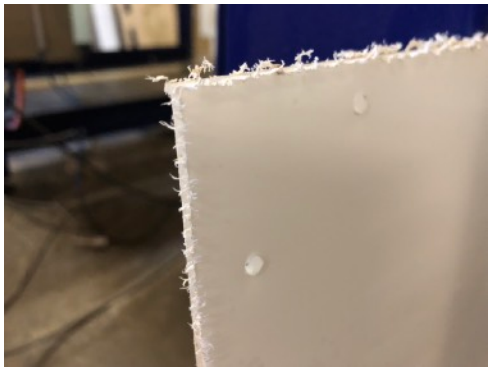
If your printer is stock then no customization is needed. If you have customized the printer, you should examine any modifications to make sure they don't block the panels. If part of one of the panels is blocked, you can use a laser or drill to customize one or more panels. **This should be done before removing the plastic or paper covers on the acrylic panels. Cutting acrylic requires great care as the plastic is prone to crack if mishandled.**

Preparing the Printer

1. Remove any filament from the hot end (will require heating the hot end) and remove the filament spool from the spool holder.

2. Turn the printer off and unplug the power cable from the printer's power supply.

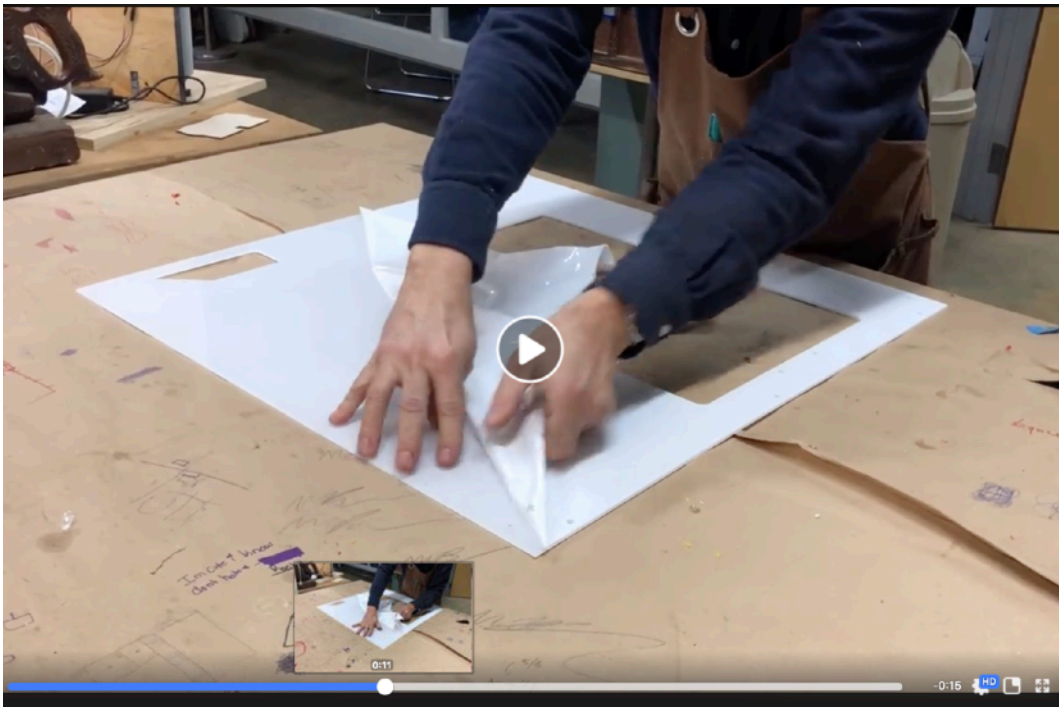
Don’t Panic If You See This!



If you can’t see through the plastic, please don’t panic! What you’re seeing is just the plastic or paper protective covering. You, dear customer, are way too smart to think the plastic is flawed and then call and email us over and over again leaving increasingly irate messages.

You see, when plastic sheets are manufactured they are covered by either a paper (brown colored) or plastic (white) covering to protect against scratches. Follow the directions below to remove the cover and discover the beautiful plastic underneath. But if, in some rare instance, your plastic does arrive with a crack or scratch, either from manufacturing or in shipping, we’ll of course replace it for free.

To remove the covering from an acrylic panel, lay the panel flat on a table. Then peel up a corner of the covering and **CAREFULLY and SLOWLY** pull horizontally to the sheet to reduce the lateral forces that would bend the acrylic. This video shows just what to do.



How to Remove Protective Covering from Acrylic Video

Assemble Panels

1. The Front Door

Each of the corners on the enclosure will be held together by the connectors pictured below. There are only two versions L and R, which can be identified by the letters stamped on the inside. The opposite connectors are identical, i.e. Bottom Right is the same as Top Left. In all cases the surface of the connector with the cutout pattern faces front or back. Note the pictures below *show the back of the front panel.*

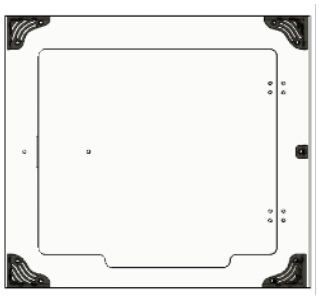
Top Left

Top Right

Bottom Left

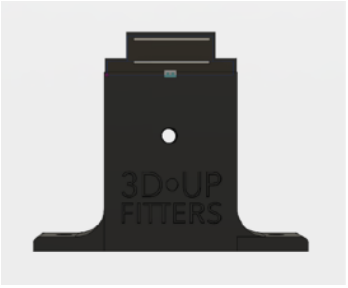
Bottom Right

The front door is designed so that the latch is on the left. Attach the corner connectors on the ***back side*** of the door frame using the provided cap head 12mm screws. See the photos above. The top of the connector should be flush with the top of the acrylic. Adjust the screws snugly, but not tight as you'll adjust them later.



There is also a mid-panel corner connector to attach on the right side.

Locate the magnetic latches and use the **wood screws** to attach them to the latch mounts. Hand tighten and make sure they're secure, but do not over tighten or they may strip. The magnetic latch can be later adjusted front-to-back to make sure the door is flush with the door frame.



Each latch mount is attached via three screws. Two M4 10mm cap heads are used to attach the latch mount to the side, while a 30mm cap head secures the latch mount to the door frame.

Attach the latch mount to the front door frame using the included 30mm M4 screw.

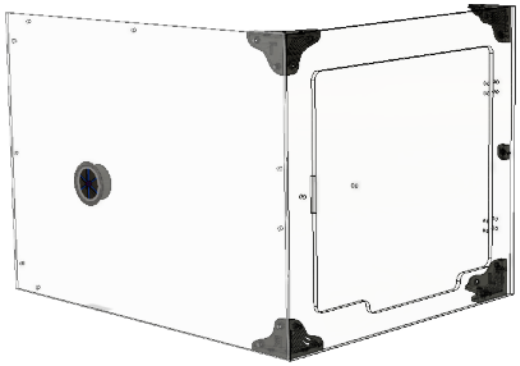
Attach the hinges to the door and door frame using M4 flat head 14mm screws and nuts. There will be some play in the hole size so that you can adjust the door to swing freely.

Attach the door knob using a 14mm flat head screw and nut.

Now that the latches are mounted it is time to connect the strike plates, shown above to the right of the latch mount. Each plate comes with a squishy adhesive covering the same size of the plate. Carefully attach the adhesive side to the acrylic at the location of each latch. Then, adjust the width of the metal strike plate so that it is held on by the pressure of the two sides of the plate. The adhesive covering will keep the strike plate from scratching the acrylic.

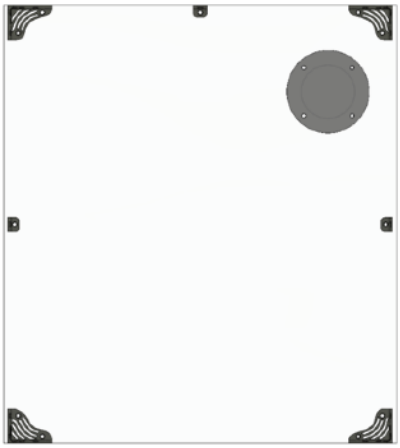
You can adjust the way the door swings by using the magnetic latch to hold the left side of the door in place, and then loosing and tightening the screws holding the hinges on the right. The door should open and close freely. If it doesn't, adjust the hinges until it does.

2. Attach Left Side



The left panel is distinguishable by its small hole for a cable grommet, in addition to having “left side” written on it. Insert the grommet as pictured before attaching the front of the left-side to the door frame.

3. Assemble Back



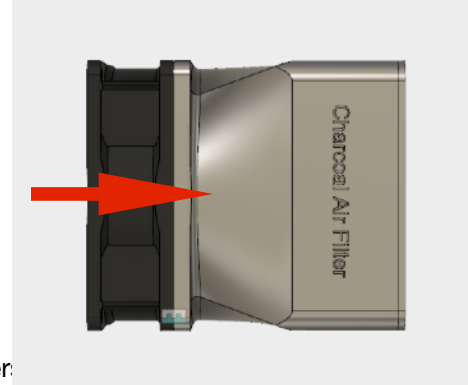
The view to the right is the back panel of the regular Prusa enclosure when viewed from behind. The MMU2S version adds two rubber grommets (not shown) for the PTFE tubes to fit through.

The four corner connectors are mirror images of the front.

On the top and on each side are “mid panel corner connectors”, which are basically simple L-shapes.

The large hole is either for a fan by itself, an air filter (purchased separately)/fan combo, or it can be covered up by a plastic disk depending on how much air flow you want.

Note that the fan, either by itself or paired with the filter or vent is necessary to draw air over the power supply. This both heats up the air inside the enclosure AND cools down the power supply, which extends its life. Only use the circular disk to cover up the hole if you have moved the power supply outside of the enclosure, or if you simply don’t care about power supply longevity.

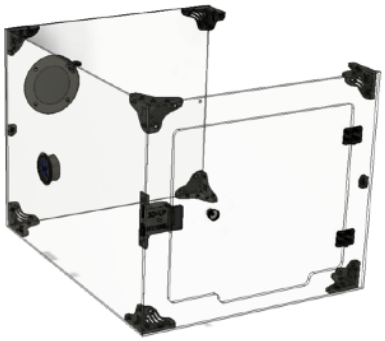


Confirm the direction of the fan’s air filter by plugging it into a USB power supply before attaching to the filter and back of the enclosure. **The fan should be oriented to pull air OUT of**

the enclosure. If attaching the fan by itself use 16mm cap head screws; if attaching the filter and fan use M4 cap head 30mm or 40mm screws depending on the depth of the particular fan.

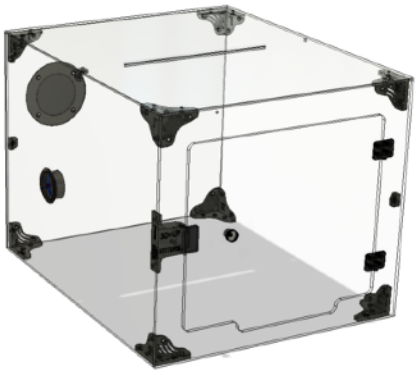
The air filter should look like this after being attached. Note that it's easier to insert the screws from the inside, and put the nuts next to the filter housing.

Now attach the back to the left and front panels, which should look like the illustration to the right. Note the picture shows the filter hole cover in place.



4. Attach Top

Be careful when taking the plastic cover off of the top, as the area around the filament slit is delicate if bent the wrong way.



The top has a front, back, and left to right. This is because it overhangs the front which is twice as thick. *The right side of the filament slit is closer to the right edge than the left.* Use access through the doors to attach the top of the enclosure using M4 10mm screws. *If you attach the top and there's overhang in the back, then it's attached backwards.*

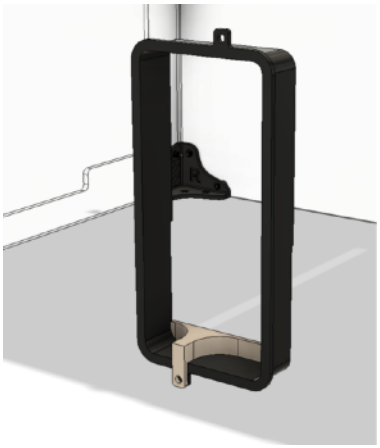
The MMU2S version adds to rubber grommets that are not shown in the above image.

5. Attach Right Side

The purpose of the vent on the right side is to bring cooler air to the power supply to increase its longevity under heavy use. With the fan and/or carbon filter in place cold air will be drawn in through the power

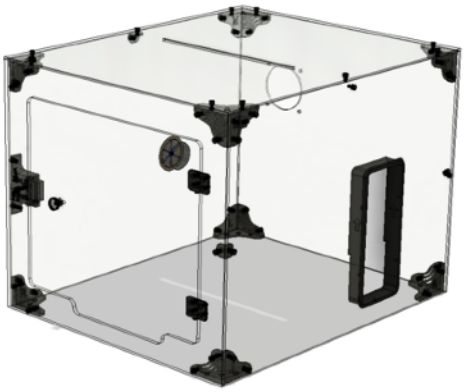
supply, both cooling the power supply and heating the air as it enters. Even without a fan, the power supply is still cooler this way because one side is exposed to colder air.

The right side panel is a little tricky to configure because Prusa now has used two different sizes of power supply. The default layout is for silver power supply they've used for years. Just make sure the cutout in the vent is on the bottom half to fit around the small bump at the bottom 1/3 of the supply.



If, however, your power supply is black, you've got one of new ones. In that case you'll want to run its power supply cord through the black grommet directly to the right of the vent. You'll also notice a gap between the bottom of the power supply and the vent. This can be plugged with a "Prusa gap fillter" piece.

With the vent adapter in place, you can now attach the last panel onto the enclosure.



6. Sealing Gaps

Once the enclosure is completely put together, it is time to make sure that each of the panels is held tightly to each adjoining panel. The connectors are designed with a small amount of play that allows you to make small adjustments for the perfect fit.

1. Loosen screws on the panel to move.
2. Push that panel into place. You may need a friend to hold it tightly in the right spot.
3. Re-tighten the screws to hold the panel.

Repeat the process, going around the enclosure looking to make sure all of the panels are flush to each other.

Once the gaps are sealed, you can then position the enclosure. The biggest thing to get right is to sit the power supply vent right next to the power supply. There isn't

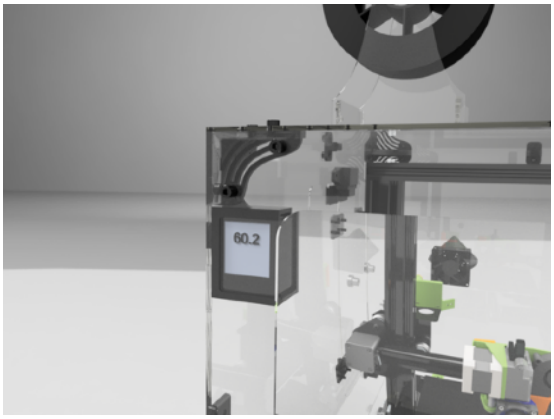
much tolerance in the placement of the off/on switch and power cable plug, so you'll have to get it pretty close. This will make it easier to turn off and on and provide the best seal so that heat won't escape.

7. Spool Holder

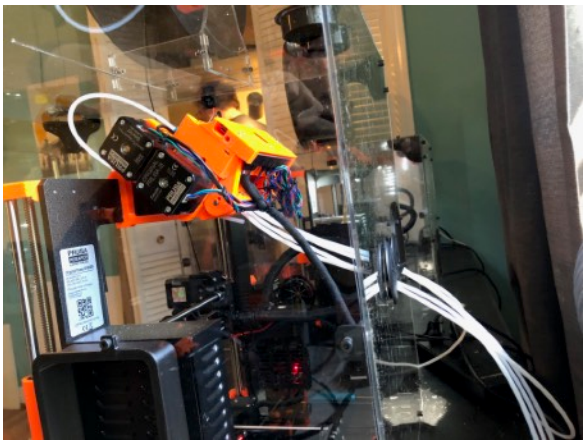
Instructions for assembling the spool holder are available online. You can simply sit the spool holder on the top of the enclosure where the filament can fit into the slit. Of course, you are free to use whatever type of freestanding spool holder you wish; there are hundreds of designs available on Thingiverse.

8. Thermometer

The optional thermometer will let you know approximately what temperature it is inside the enclosure. It attaches to the left side of the door piece using the same hole as the top-most corner connector as shown. It comes with a longer screw to fit through everything.



9. MMU2/MMU2S



The Prusa enclosure for the MMU2/MMU2S is taller so there is room inside for the MMU2/2S unit. It also contains 4 extra grommeted exit holes to run the PTFE tubes from the filament spools or detangler box to the top-mounted multi-material extruder.

The top grommet holes are for people who are storing filament rolls in an above cabinet or on the wall behind the printer. The back grommet holes are for people who will be placing the filament on the table directly behind the printer.

10. DIY Tool Holder

Our favorite customization is to add magnetic tool holders to the side. One end can be attached via the same hole as the corner connectors, but the other end will require drilling a single hole.

You can find magnetic strips like this all over Amazon or your local hardware store.