# 4-Port USB Hub for IKEA Mittzon Desk

Created by Ruiz Brothers

https://learn.adafruit.com/4-port-usb-hub-for-ikea-mittzon-desk

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# Overview

## DIY USB Hub

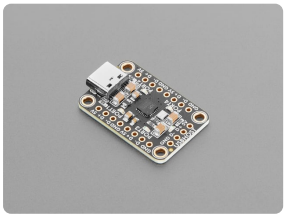
The IKEA MITTZON desk () features a plug-in module that is originally designed to fit the KOPPLA () power strip. It's a neat idea but it only features 2x USB ports. Wouldn't it be great if it had MORE?!

The Adafruit CH334F 4-port USB hub breakout is perfect for embedding a DIY USB hub into projects. This project employs the breakout along with a 3D printed panel cover that's designed to fit into the IKEA MITTZON desk to create a custom integrated USB hub.

## Storage & Customization

The 3D printed panel also features an additional tray insert for storing items like adapters, cables, bits and bobs. You can print the panel in your favorite color to personalize it, and even customize the panel to include additional components by modifying the open source design files. Make it yours!

# Parts

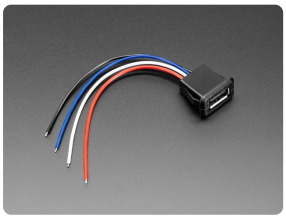


Featured

### Adafruit CH334F Mini 4-Port USB Hub Breakout

Sometimes you've got something with USB host, like a embedded linux board, and you want to connect more than one thing. Or maybe you want to turn something like a keyboard into a...

https://www.adafruit.com/product/5997

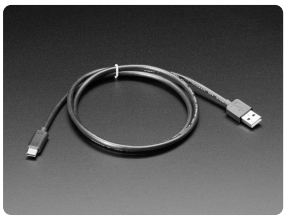


Featured

## Snap-In Panel Mount Cable - USB Type A Socket to 4 Wires (×4)

This panel mount cable is great for making USB Host connections with a panel-mount setup. On the rectangular...

https://www.adafruit.com/product/6073



Featured

## USB Type A to Type C Cable - approx 1 meter / 3 ft long

As technology changes and adapts, so does Adafruit. This  USB Type A to Type C cable will help you with the transition to USB C, even if you're still...

https://www.adafruit.com/product/4474

# Circuit Diagram

The diagram below provides a general visual reference for wiring of the components once you get to the **Assembly** page. This diagram was created using Adafruit Circuit Designer.

## Wired Connections

The CH334F 4-port USB Hub is powered by a computer's USB port. Wires connecting various components:

USB A #1 to CH334F

- 5V to 5V pin on Port 1
- D+ to D+ pin on Port 1
- D- to D- pin on Port 1
- GND to GND pin on Port 1

USB A #2 to CH334F

- 5V to 5V pin on Port 2

- D+ to D+ pin on Port 2
- D- to D- pin on Port 2
- GND to GND pin on Port 2

USB A #3 to CH334F

- 5V to 5V pin on Port 3
- D+ to D+ pin on Port 3
- D- to D- pin on Port 3
- GND to GND pin on Port 3

USB A #4 to CH334F

- 5V to 5V pin on Port 4
- D+ to D+ pin on Port 4
- D- to D- pin on Port 4
- GND to GND pin on Port 4

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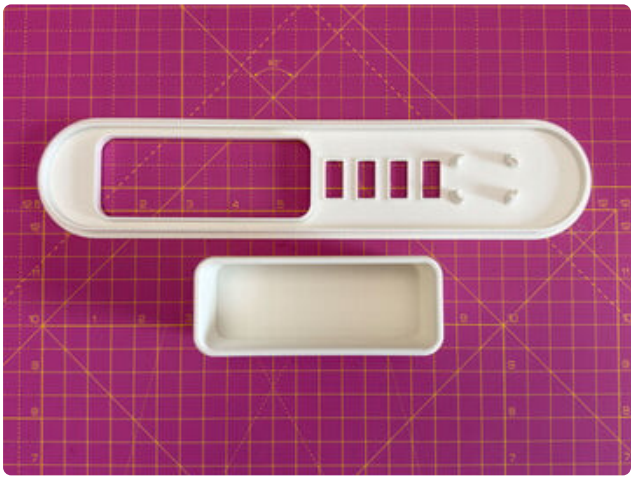
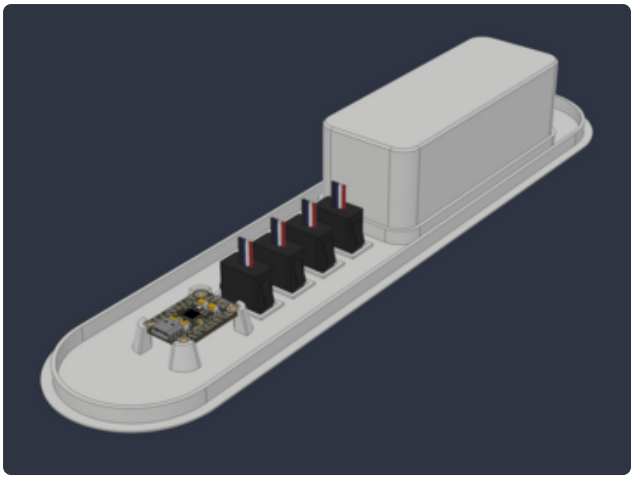
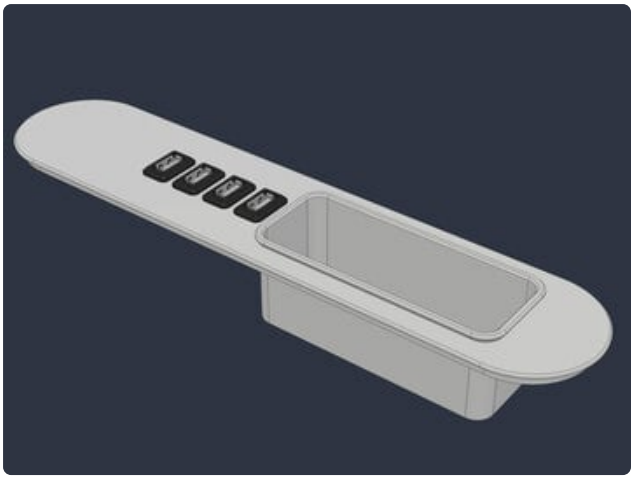
# CAD Files



## CAD Parts

Individual 3MF files for 3D printing are oriented and ready to print on FDM machines using PLA filament. Original design source files may be downloaded using the links below.



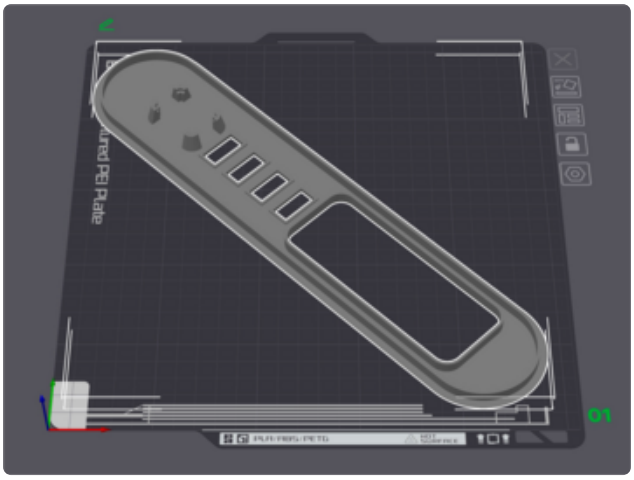


## CAD Assembly

The CH334F 4-port USB hub breakout snap fits into the built-in clips on the panel.

The four USB type A ports snap into the matching cutouts on the panel.

The storage tray insert fits into the matching cutout on the panel.

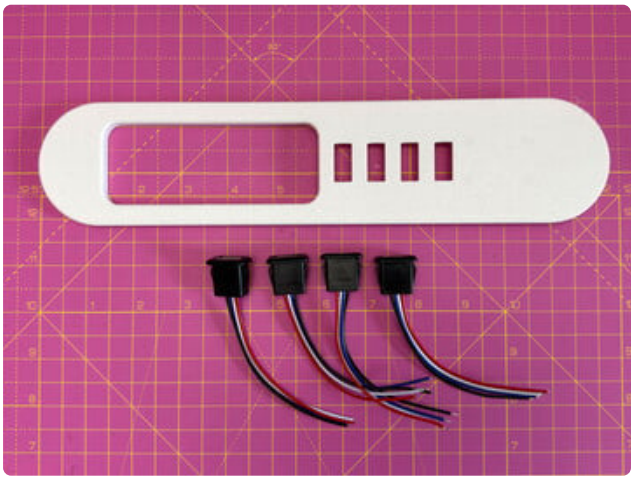


## Build Volume

The panel require a 3D printer with a minimum build volume of 237 (X) x 237 (Y) x 12mm (Z).

The panel is oriented 45 degree diagonally across the bed of the 3D printer to fit properly.

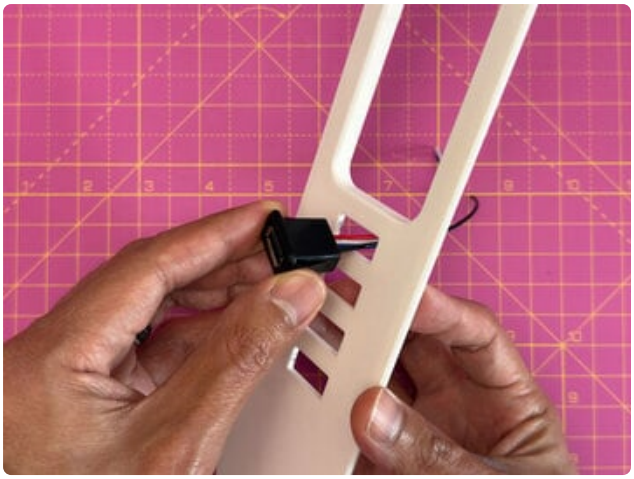
# Wiring Assembly

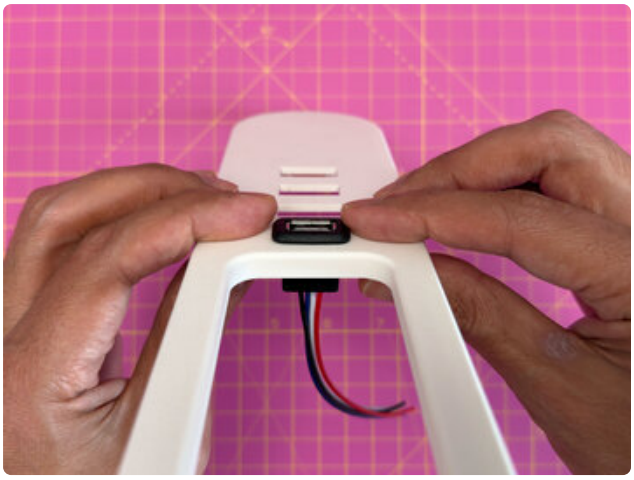


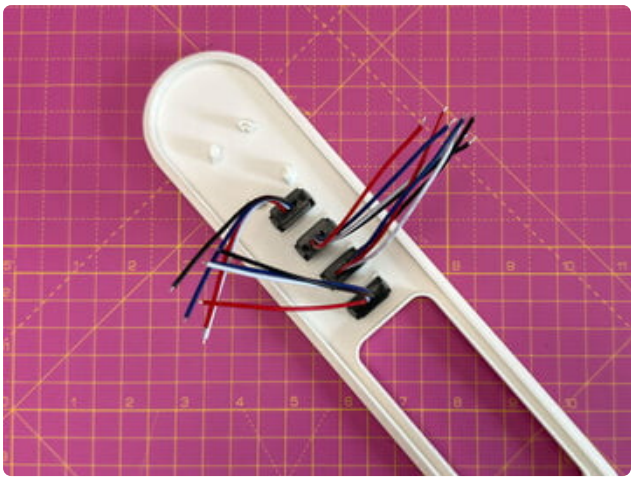
## USB Ports

Get the four USB-A ports ready to install into the 3D printed panel cover.

Ideally they will be oriented in the same direction.





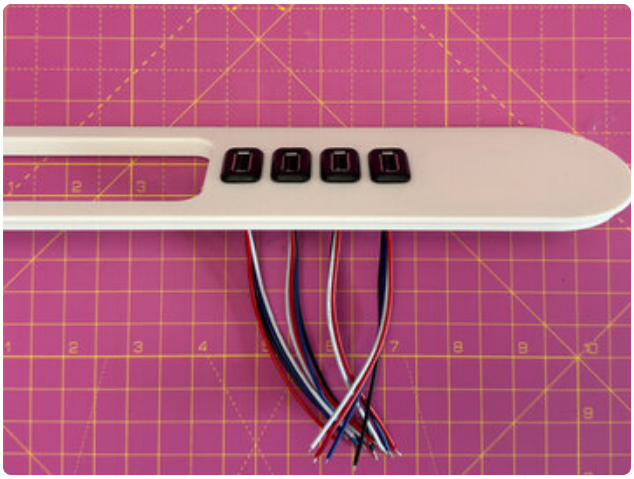


## Install USB port to Cover

Insert the wiring from one of the four USB-A ports through one of the rectangular cutouts through the top of the panel.

Firmly press the USB-A port into the cutout to snap it into place. You'll hear a satisfying "click" when it's installed.

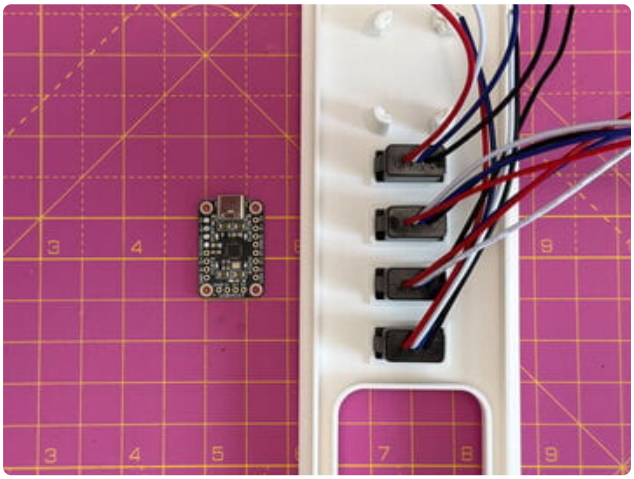
Repeat this process for the remaining USB-A ports.



## Installed Ports

Take a moment to review the installed ports.

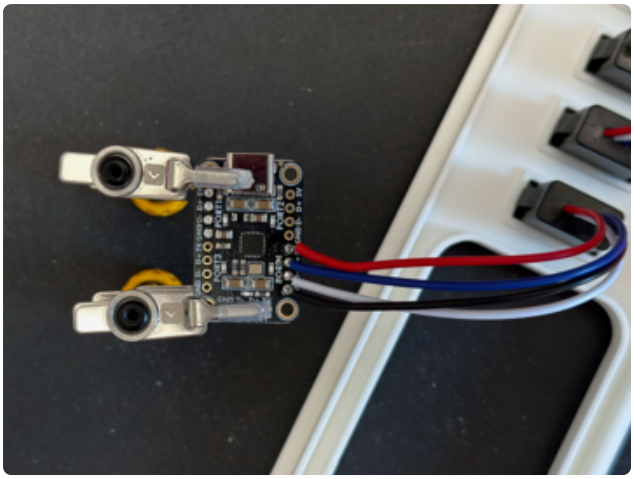
If needed, a port can be removed by squeezing the tabs on the side of the port and pulling it out.

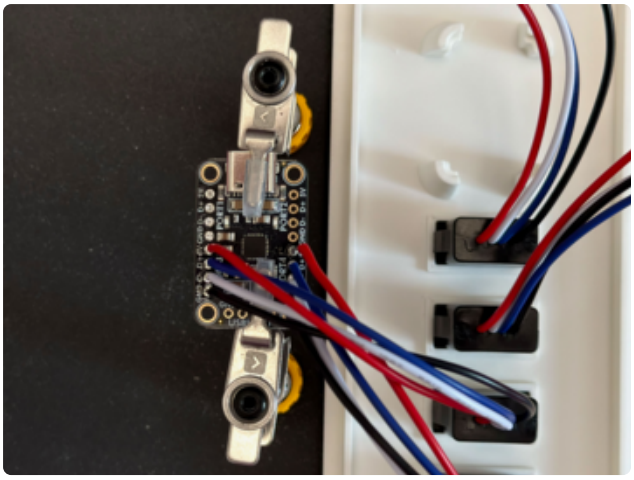


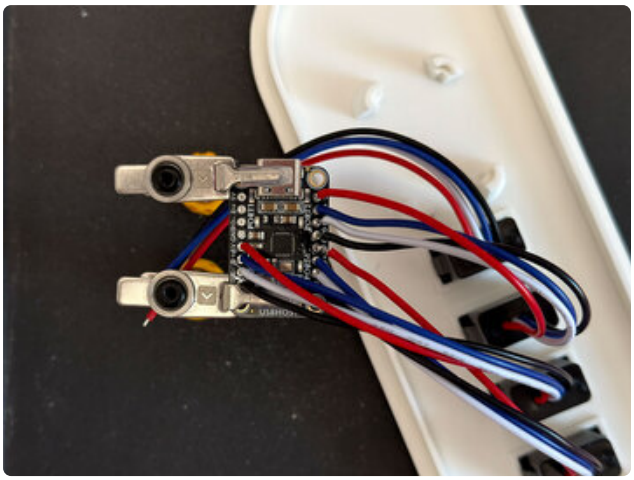
## Wiring USB Hub Breakout

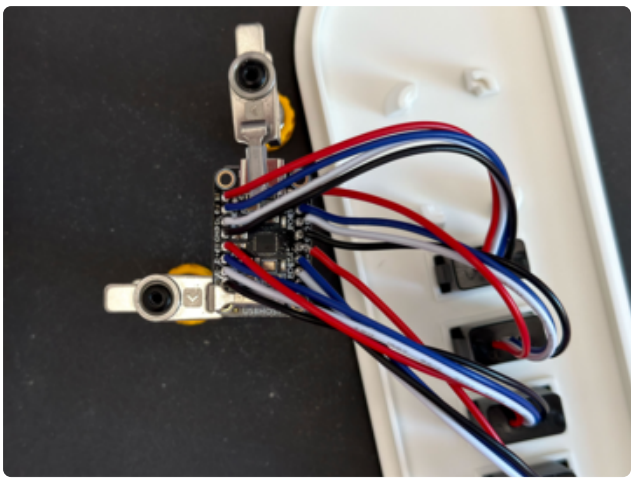
Take a moment to review the colored wires and which pins they will be wired too.

red wire for 5V
black for ground
blue for D+
white for D–





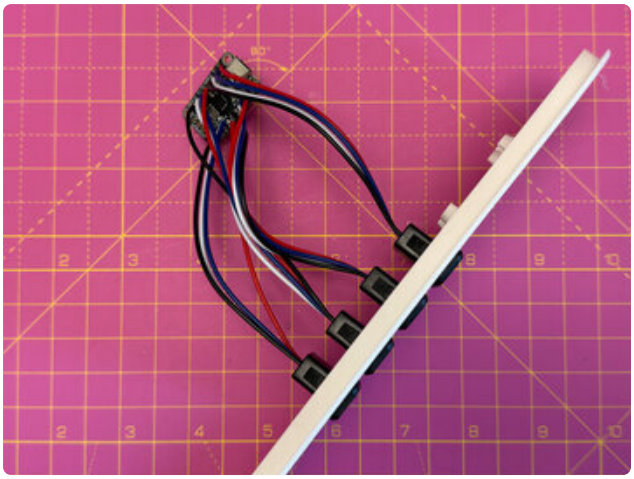




## Solder Wire Connections

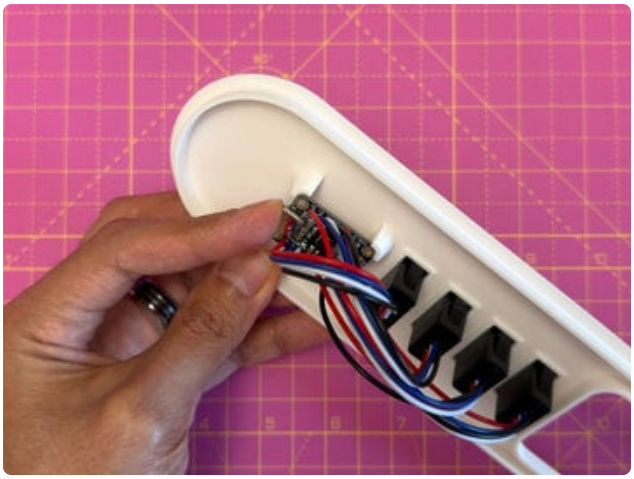
Solder the four wires from the first USB-A port to the pins on Port 1 on the CH334F breakout.

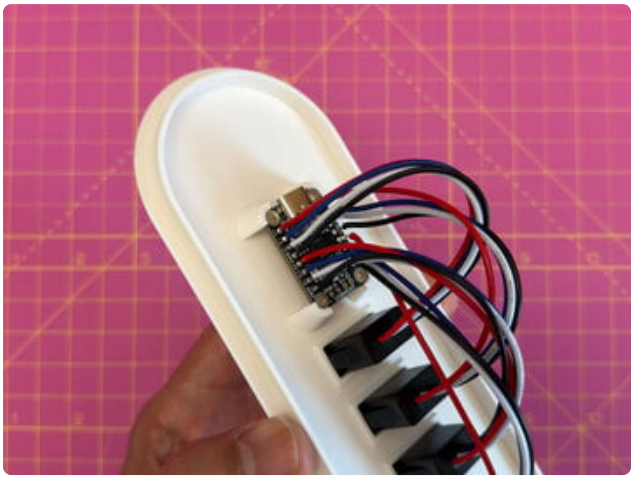
Repeat this process for the remaining USB-A ports.

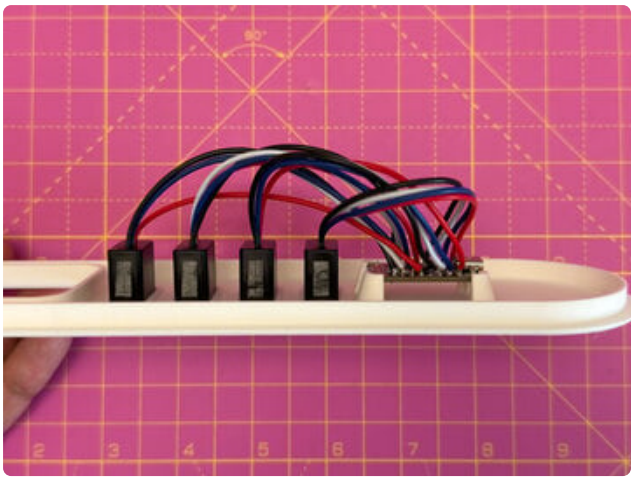


## Wired USB Ports

Take a moment to review the wiring and ensure the soldered wires are connected to the correct pins on the USB breakout.





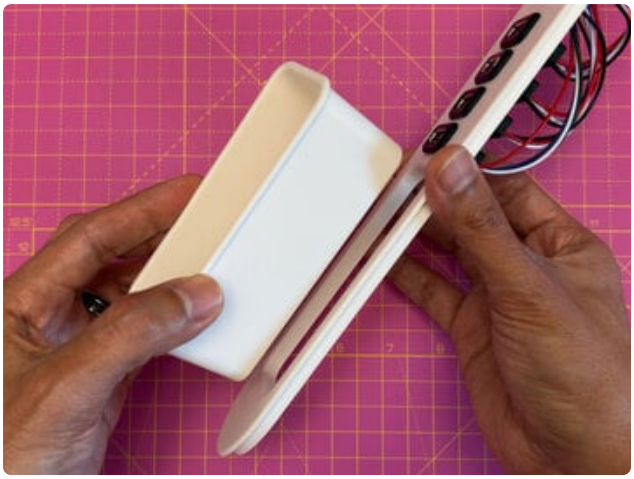


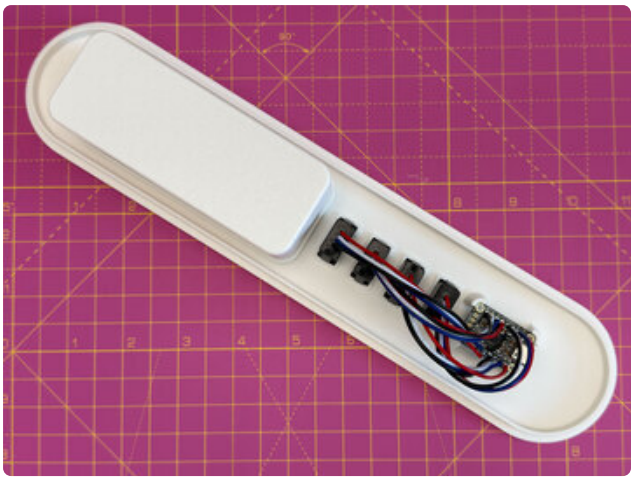
## Secure USB Hub Breakout

Orient the USB breakout with the panel so the USB-C port is facing the rounded edge of the panel.

Fit the two back corners of the PCB into the built-in clips on the panel.

Slightly flex the panel to allow the remaining corners of the PCB to fit under the remaining built-in clips and snap into place.

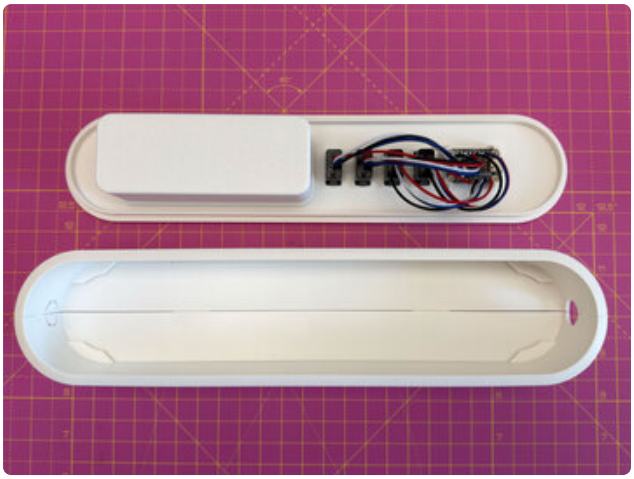




## Install Tray Insert

Insert the 3D printed tray into the matching cutout on the panel.

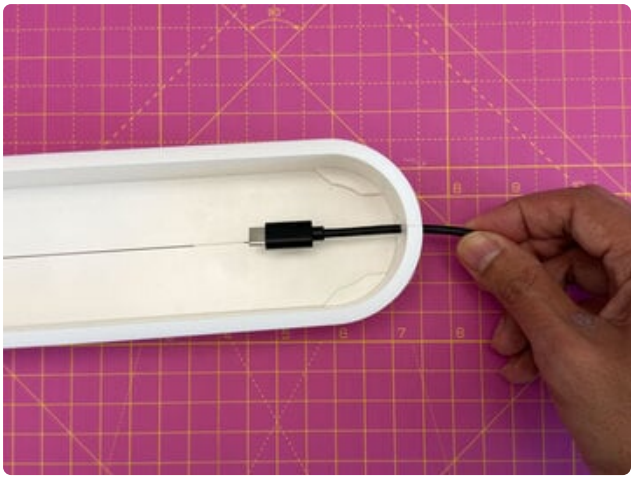
The outer lip will prevent the tray from falling all the way through the panel.

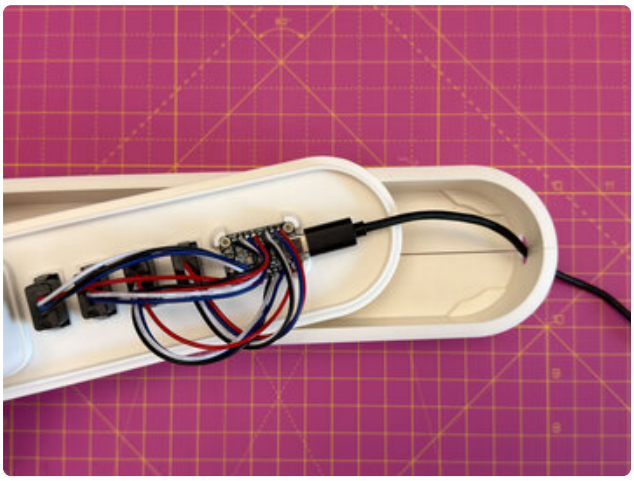


## MITTZON Plug-in Module

Get the 3D printed panel ready to install onto the MITTZON plug-in module.

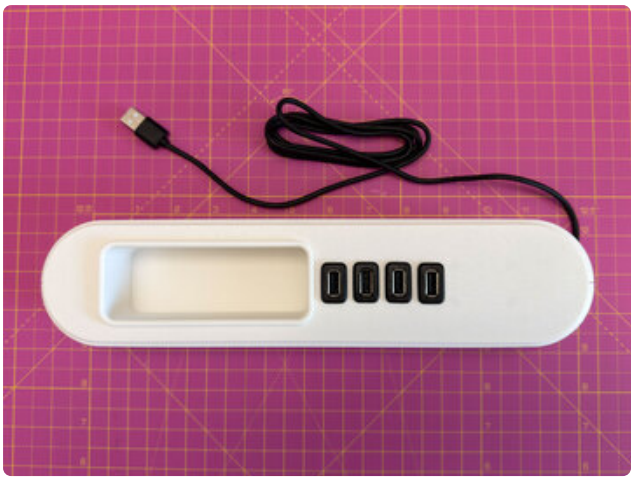
Remove one of the two circular knock-out tabs from the MITTZON plug-in module. This is where you'll run the USB cable.





## Connect USB cable

Insert a USB-C cable through the cutout in the MITTZON plug-in module and connect it to the USB-C port on the CH334F USB 4-port hub.



## Install Panel

Place the 3D printed panel over the MITTZON plug-in module and press it into place.

## Mittzon Desk Install

Install the tray into the matching cutout in the plug-in module on the MITTZON desk with the USB cable snaked through the cable management felt tray.

Connect the USB cable to your computer's USB port.

Now you have four additional USB type A ports built-into your IKEA MITTZON desk!