

Expansion Hub Type-C Adapter



Revision 1.1

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Overview

Thank you for your purchase of the Expansion Hub Type-C Adapter!
Included in your order is a fully assembled Expansion Hub Adapter board, adhesive, and any additional options chosen. Here are some tips to get you started:

- The Adapter board can be briefly tested without a case; however, it is REQUIRED for normal use. The port in the Expansion Hub is too fragile to use an Adapter without a case. When ordering, an option was available for purchasing the 3D printed case files. If you chose not to buy a case, the case files are available on the Thingiverse & Tindie page.
- You can use a single cable to connect your phone to your Expansion Hub. This cable is available when ordering your Adapter. You can use it with no modification, however following the steps to finalize the assembly are highly recommended.
- This project is fully open source! All board files, schematics, and BOM are available on the Github repository.
- For support, email bladykas.thomas@gmail.com or click “Message Seller” in Tindie.
- Useful links:
 - o Tindie: <https://www.tindie.com/products/17125/>
 - o Github: <https://github.com/bladykast/REV-ExH-Adapter>
 - o Thingiverse: <https://www.thingiverse.com/thing:3744273>

Adapter Assembly Instructions

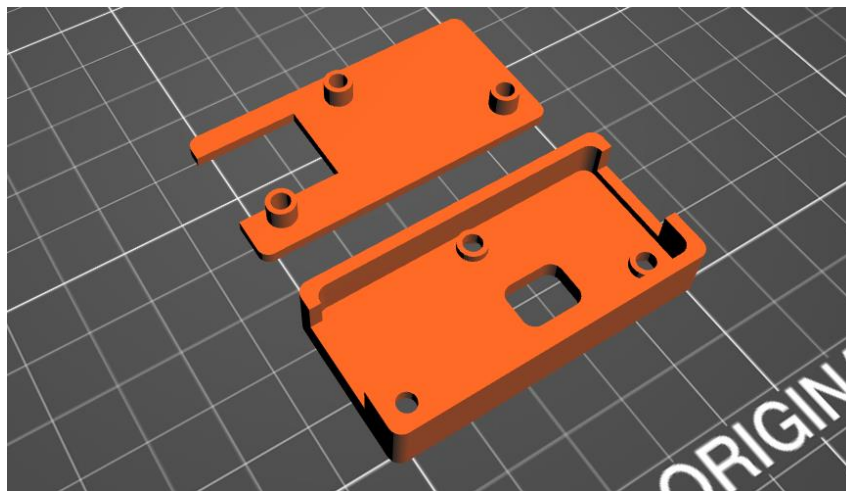
In your shipment, you received adhesive strips with your Adapter board. Additionally, you may have chosen to receive a 3D printed case or decided to print it yourself. **Skip to step 3 if you ordered a case with your Adapter.**

You will need:

- Scissors, razor or Xacto knife
- 3x M3x16mm hex-head bolts (SKU REV-41-1360)
- 3x M3 nuts (preferably nyloc)
- Rubbing alcohol/isopropyl alcohol

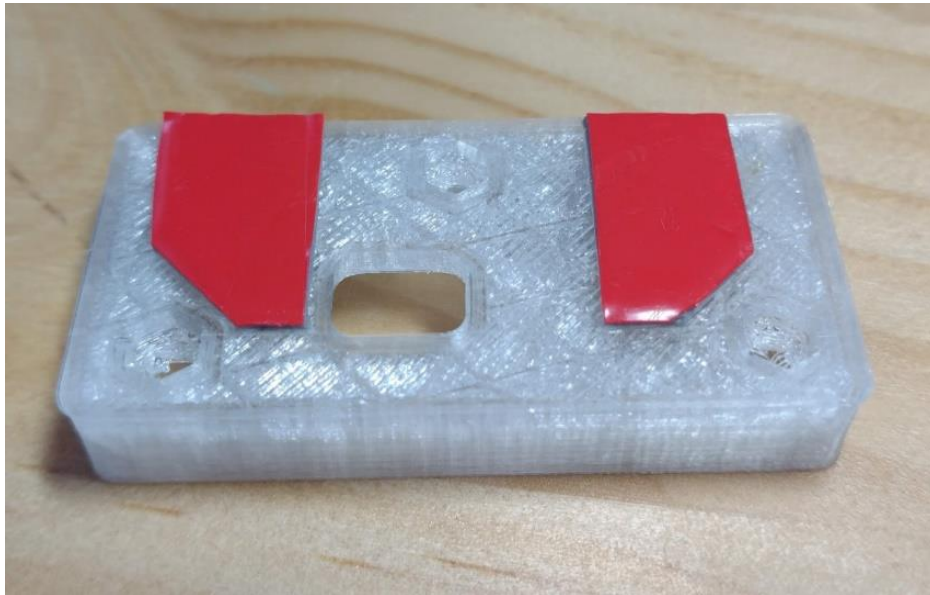
To build the assembly:

- 1) 3D print the case files for the Adapter board. Slice the files as shown.

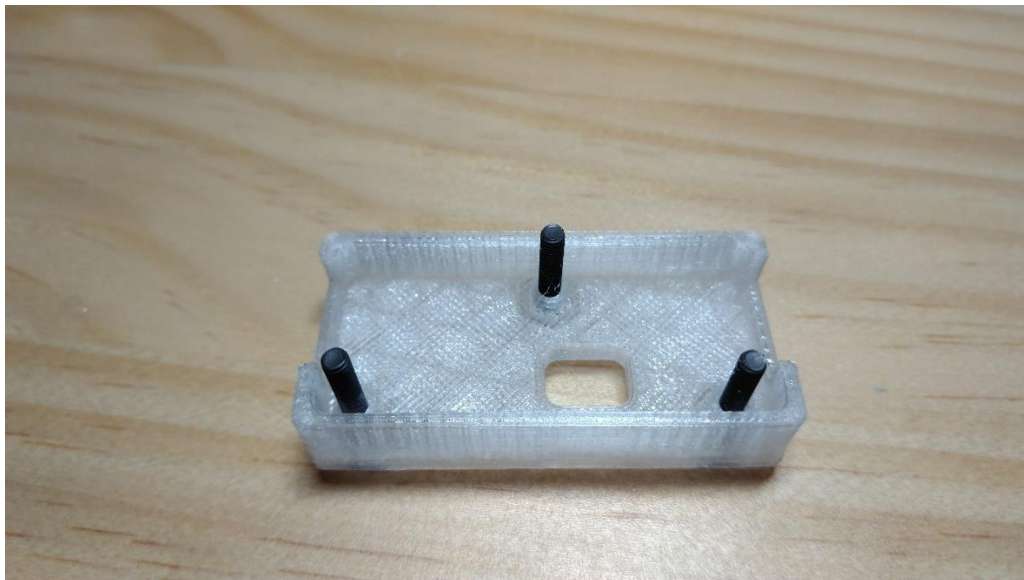


- 2) Attach adhesive strips to the back of the Adapter case, as shown, and cut the adhesive to provide clearance for the lip

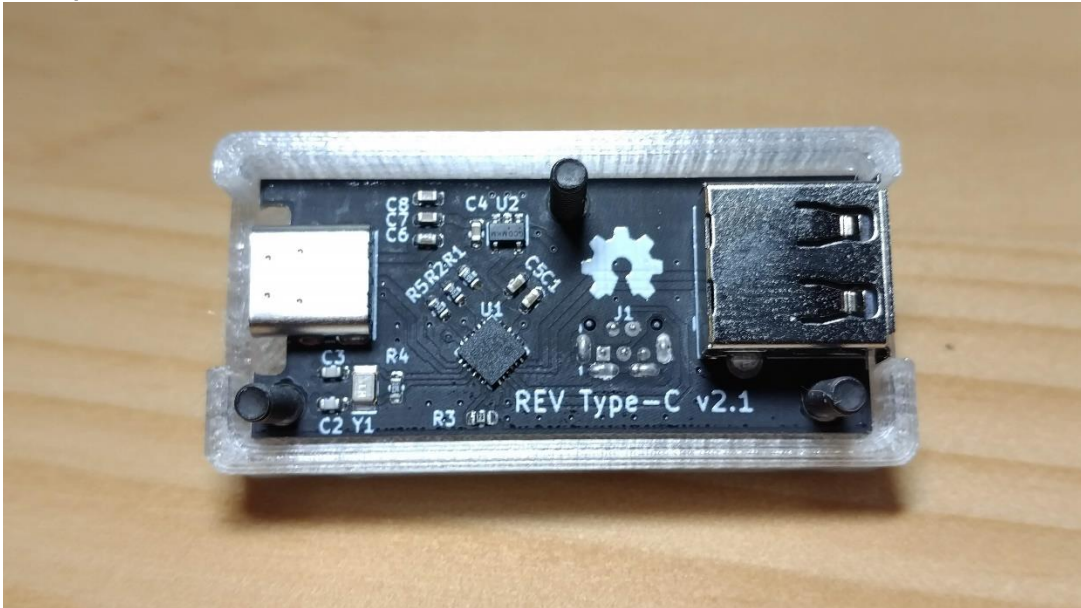
of the REV Expansion Hub, as well as the M3 hex-head bolts.



- 3) Insert M3 hex-head bolts into the case and press the case firmly into a hard surface to seat the bolt heads. If they don't press in nicely, take a pair of tweezers or needle nose pliers and clear out the holes. You may have to push the screws in from the front to clear the hole first.



- 4) Insert the Adapter board into the case, ensuring the adapter sits flush in the case.



- 5) Attach the back of the case and screw the M3 nuts onto the bolts. Ensure the board is secured, but make sure the nuts are not overtightened.



- 6) Clean the back of your Expansion Hub with a paper towel and a little rubbing alcohol, then dry. This helps the

adhesive stick onto the Hub by removing any dust or dirt.
(Note: if you still have a sticker on the back of the Expansion Hub from the REV USB Retention Mount, it is okay to keep it on.)

- 7) Remove the red adhesive backing and plug the adapter into the Expansion Hub, while pressing on the case to secure the adhesive.



- 8) You're done! Let the adhesive sit for a little while longer to set before use.

Cable Assembly Instructions

In your shipment, you may have opted to buy a custom Micro-B to Type-C cable. This will show you the proper way of finalizing the cable for use. **Skip if you did not order.**

You will need:

- Custom cable
- Hot glue gun or epoxy
- (Optional) Soldering iron
- (Optional) 100k Ohm resistor

To build the assembly:

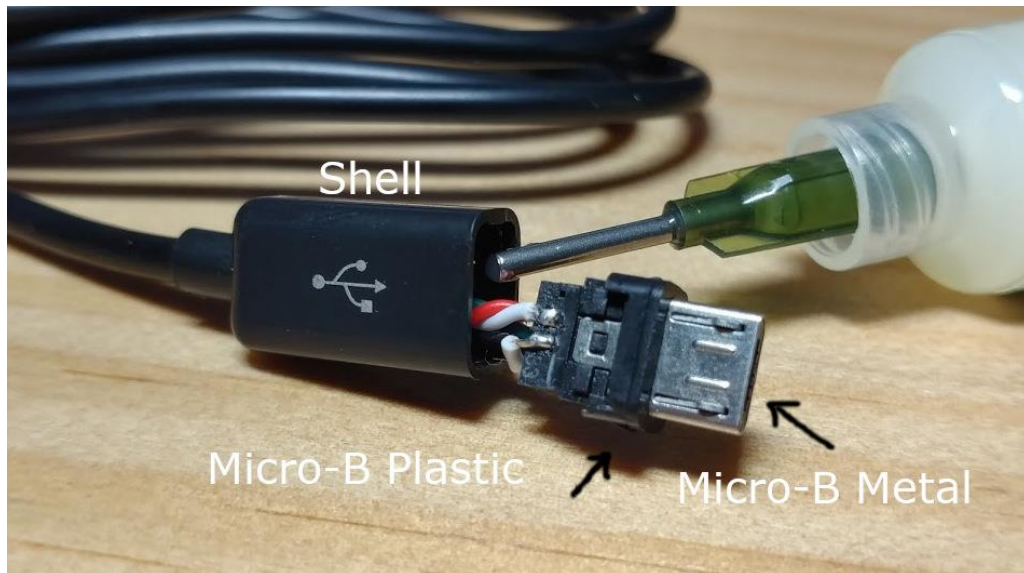
- 1) Wiggle the Micro-B connector out of the shell. It should either be loose or partially seated when you receive the cable.



- 2) (Optional) If you desire charging + OTG functionality on the cable, or would like to enable a special OTG mode through the ID resistor, take the time to desolder the wire bridging the ID pin to ground and carefully solder the resistor of

your need on. You must ensure there is adequate spacing inside the shell to fit it.

- 3) Take the time to test the cable. If it is not functional, inspect the solder joints. If still not functional, contact support.
- 4) Take your hot glue gun or epoxy, fill the shell partially, leaving room for the connector, and push on the connector plastic piece into the shell. **Do not push on the metal part of the connector**, it will irreversibly sink the connector into the shell.



- 5) Make sure the Micro-B connector is sticking out enough to plug into the robot controller phone. If not, pull on the metal part of the Micro-B connector while also pushing on the plastic part with your fingernail.



6) Let the glue set.

7) You're done!

Native Type-C/Control Hub Instructions

If you want to use the Adapter board with a device such as a native Type-C enabled phone, computer, or Control Hub, with a Type-C to Type-C cable, it is necessary to solder on the CC resistors required for identifying the device.

You will need:

- 2x 5.1k Ohm 0603 resistors
- Soldering iron

To enable:

- 1) Solder the resistors to the R6 and R7 pads on the back of the board.
- 2) You're done! Now native Type-C devices will see the Adapter, and subsequently the Expansion Hub, along with any other downstream devices.

Troubleshooting

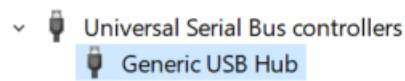
If your Adapter does not work, do the following:

- Verify the robot is switched on, and that the Robot Controller phone is on and plugged in.
- Double-check your wiring and verify no cables are loose, unplugged, or damaged.

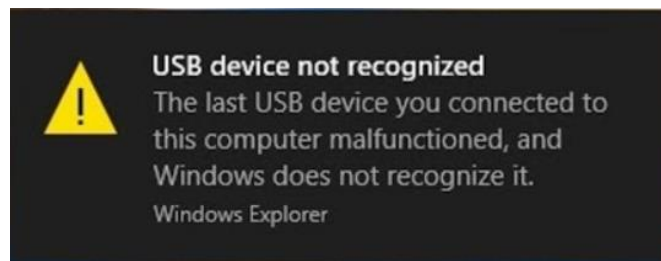
If the problem proceeds:

- Plug the Adapter into a computer. There are three scenarios:
 - 1) The adapter works,
 - 2) The adapter malfunctions,
 - 3) The adapter is not recognized.

1) If the adapter works when plugged into a computer, this signifies a wiring error between the Adapter and phone. It will show up as “Generic USB Hub”.



2) If the adapter malfunctions, you will see a dialog box similar to this:



This signifies either a wiring issue between the computer and Adapter, or a faulty Adapter. If you replace the USB cable and this error persists, contact support.

3) If the adapter is not recognized, make sure that you are not using a Type-C to Type-C cable to plug the adapter

into your computer. If you require this, make sure you have followed step 10. If this problem persists after replacing the USB cable, contact support.