

Xbox HDMI Plug Adapter v.1.0

by TEK Nemesis

Facebook: <https://www.facebook.com/groups/TheMODShopByTEK/>



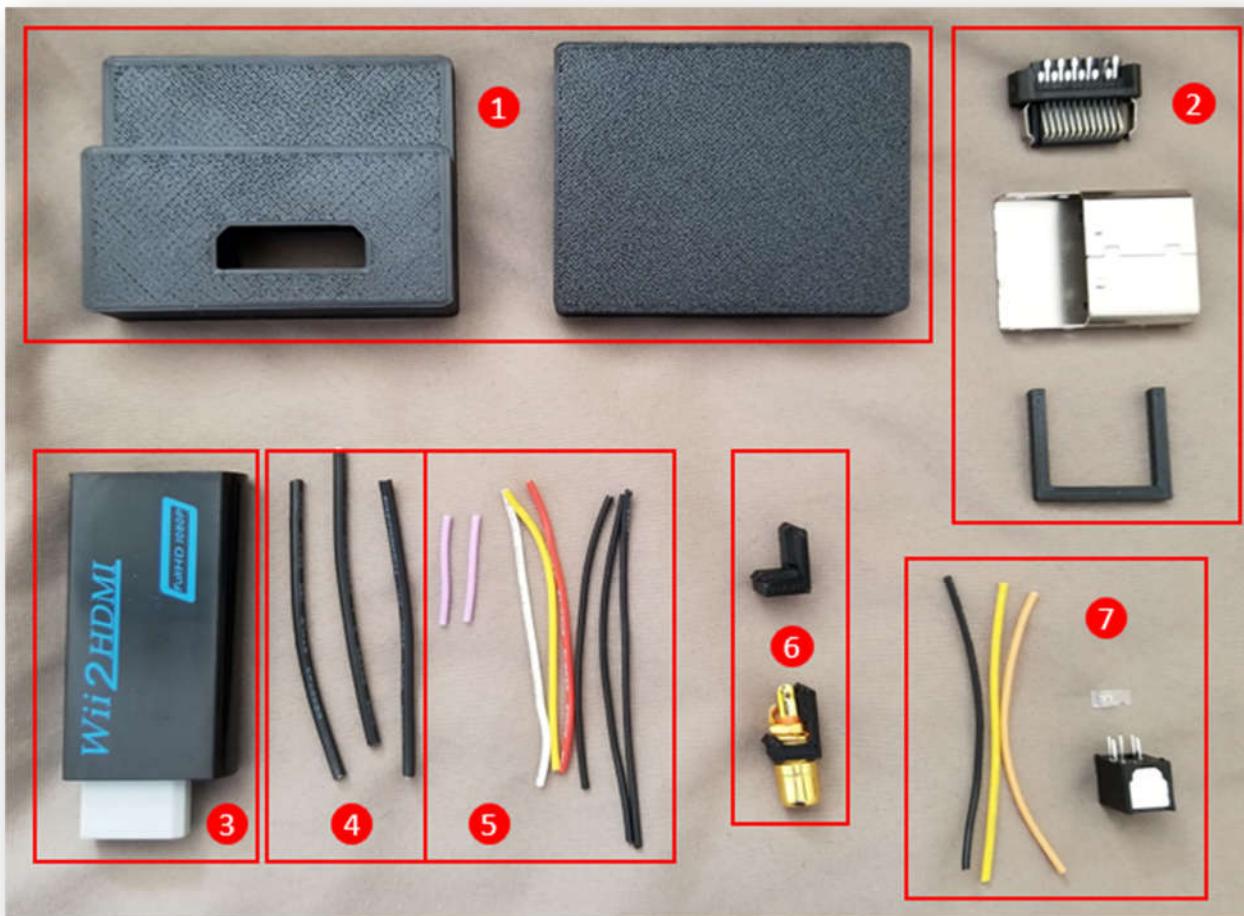
Thank you for purchasing this kit! I hope that you enjoy making this HDMI adapter as much as I have enjoyed producing it for you. Should you have any questions, don't hesitate to ask.

*Please take care when touching the Wii2HDMI Printed Circuit Board because static discharge can permanently damage it.

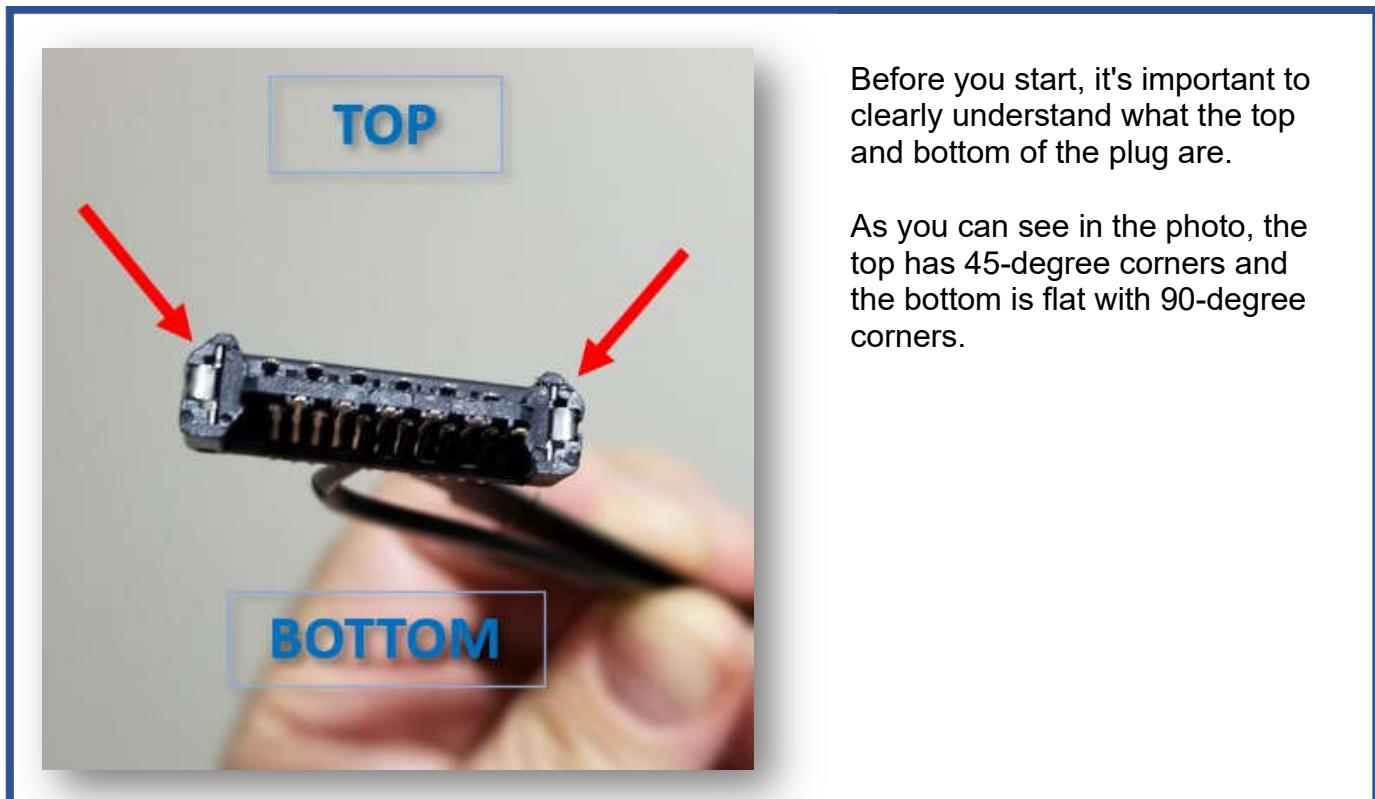
Though the kit is very complete, you'll still need a soldering iron, some good electronics solder (like Kester "44" 63/37 Rosin Core), X-ACTO Knife, no-clean flux pen (or paste), Isopropyl Alcohol (99.9% for electronics), Gorilla/Krazy glue, and some lint-free cotton swabs.

Supplies

All supplies may be ordered through **The Mod Shop by TEK Nemesis** Facebook group page (link above). Ordering there will ensure that you have the right parts to do the job (especially the Wii2HDMI adapter as there are some that will not work properly with an Xbox).



- ① 3D Printed enclosure
- ② Xbox Plug with U-shaped stopper
- ③ Wii2HDMI adapter
- ④ 3 x Shielded Video wires
- ⑤ Assorted 24AWG wires
- ⑥ Blank insert and Coaxial Insert (optional)
- ⑦ TOSLINK transmitter kit



Start by removing 1/4" of outer insulation on each side of all three shielded video wires.

Be careful not to cut through the shielding.

Twist the shielding and tin half its length (1/8").



Helpful
Tips

To tin a wire, apply the tip of your iron to the wire for a second or two, then apply the solder to the wire. The solder should freely flow into the strands and fill the wire.



Strip a third of the visible white insulation off the inner wires and tin them.

On one end only (for all three wires), trim the outer wire so that it is even with the white insulation on the inner wire. (See dotted line in photo.) The trimmed end will be soldered to the Xbox plug and the other end will be soldered to the PCB.

Strip and tin all the other wires in this kit.

You only need to strip off the same length that you did for the inner wires (with the white shielding, in the previous step).



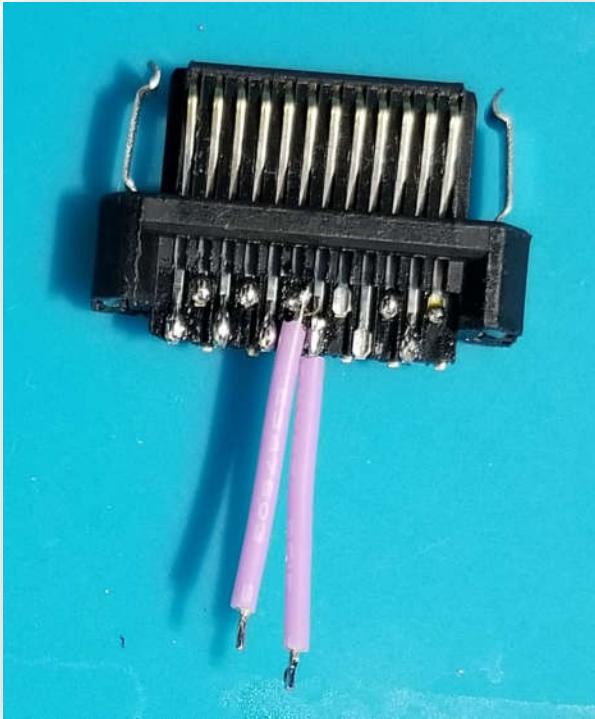
Now that you have prepared all the wires for soldering, you will now prepare the solder points on the Xbox plug.



TOP OF PLUG: As shown in the picture on the left, tin the first seven pins on the left and the last three pins (on the right).



BOTTOM OF PLUG: As shown in the picture on the right, tin the first three pins (from the left), skip two pins, tin two more pins, skip one pin and tin two more pins.



TOP OF PLUG (at left): solder the two short wires on the six and seventh pin from the left.



BOTTOM OF PLUG:

Bend the wires around to the bottom side and solder them in place on the 6th and 7th pins from the left.

TOP OF PLUG:

Flip the plug over so that you may solder one of the shielded cables.

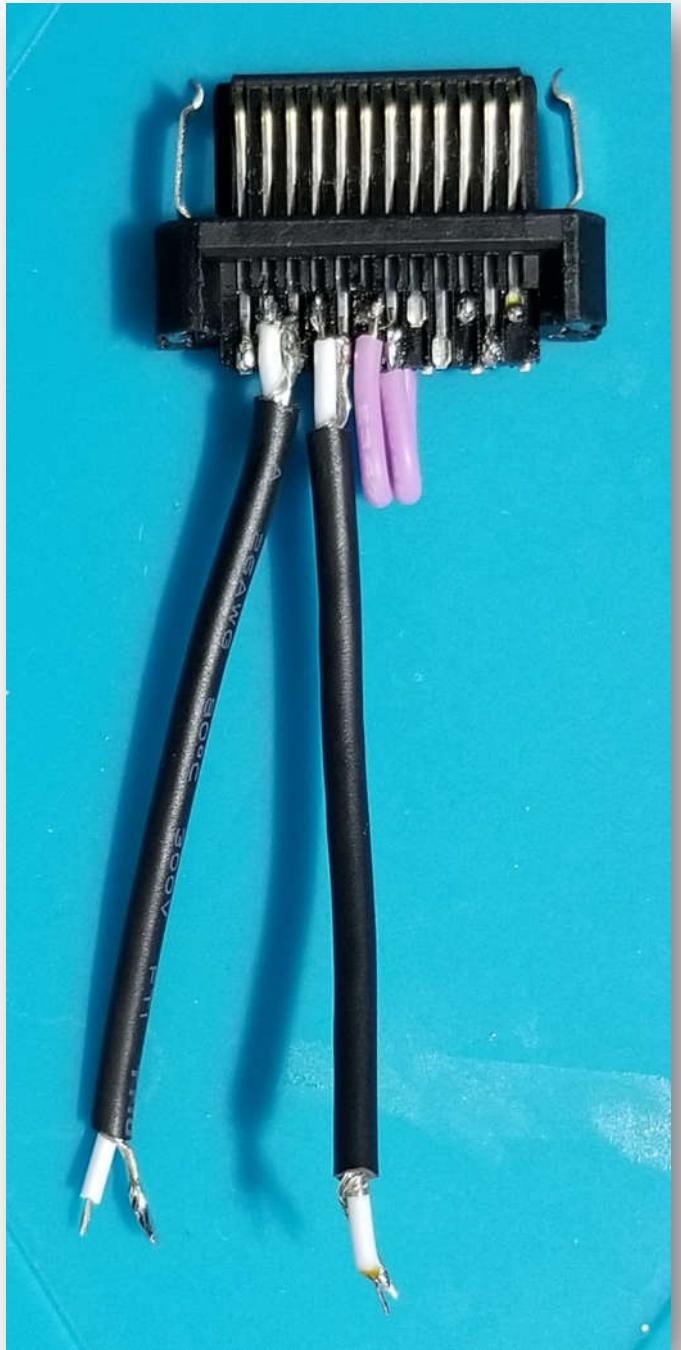
The end that gets soldered onto the plug is the end where you cut the outer wire a little shorter.

The inner wire (with the white insulation) goes to the 2nd pin from the left and the outer wire goes to the 3rd pin from the left.



You will need to remember that this is the Y video cable.





TOP OF PLUG:

Solder a second cable right next to the one that was just soldered on.

The inner wire with the white insulation gets soldered onto the 4th pin from the left and the outer wire gets soldered onto the 5th pin from the left.

You will need to remember that this is the PB video cable.





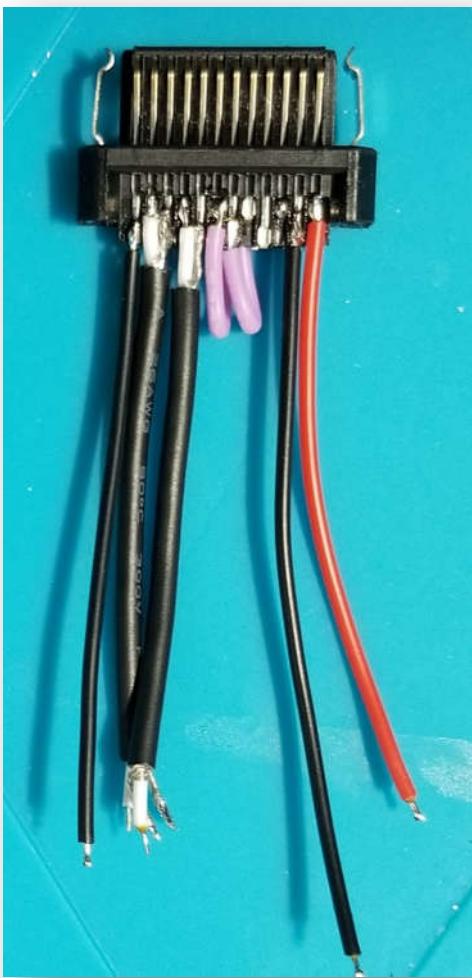
TOP OF PLUG:

Solder the RED wire to the far-right pin.



TOP OF PLUG:

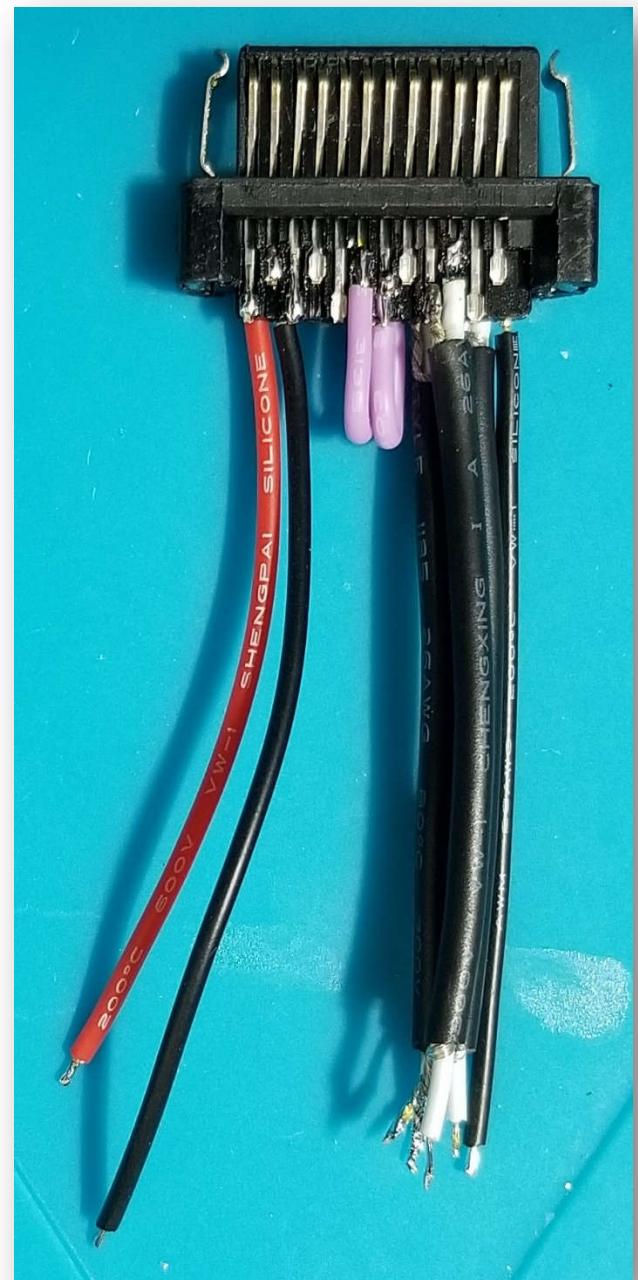
Solder one of the longest BLACK wires to the left of the RED wire (2nd pin from the right).



TOP OF PLUG:

Solder the short BLACK wire to the 1st pin on the left.

(Note: if you have not purchased the Deluxe HDMI Adapter with the TOSLINK or COAXIAL port then you will not be soldering a wire to the third pin from the right.)



BOTTOM OF PLUG:

You'll be soldering on the third video cable next.

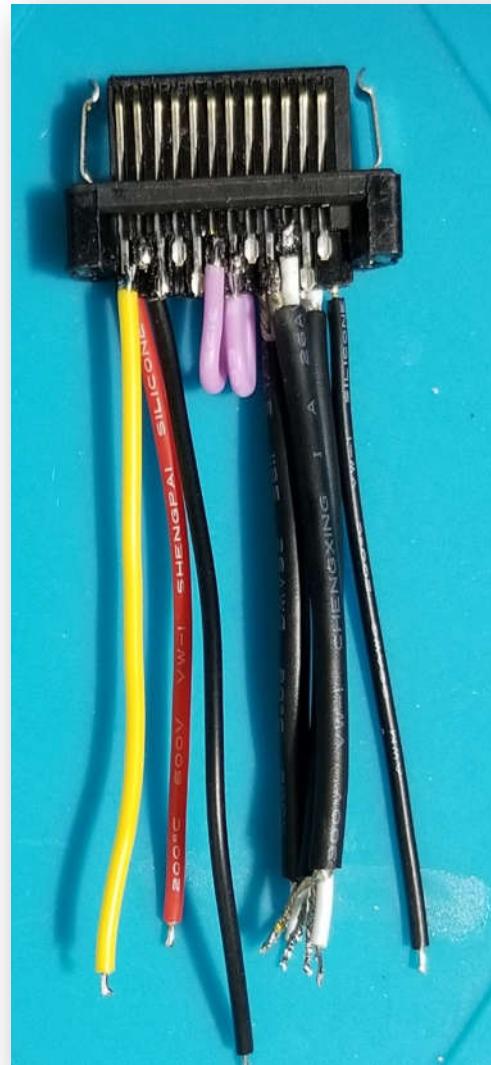
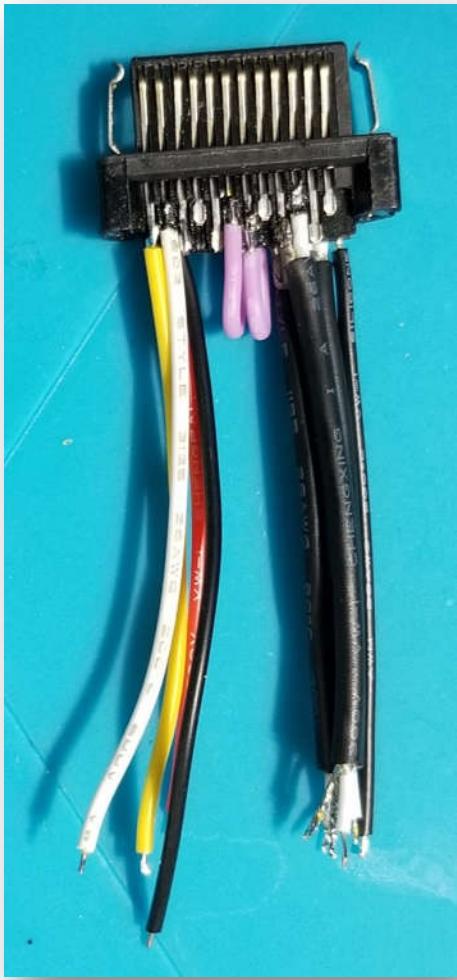
Flip the plug over and solder the inner wire (with the white insulation) to the 3rd pin on the right and then solder the outer wire to the left of it (4th pin from right).



You will need to remember that this is the PR video cable.

BOTTOM OF PLUG:

Solder the YELLOW wire to the 1st pin on the left.

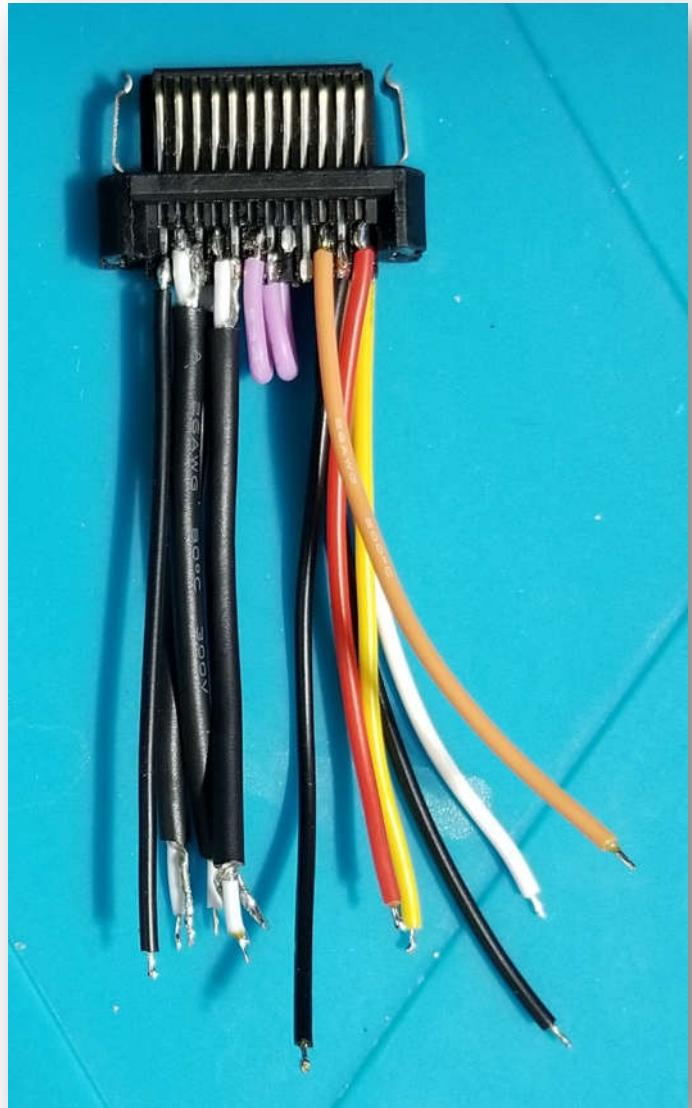
**BOTTOM OF PLUG:**

Solder the WHITE wire to the 2nd pin from the left
(right next to the YELLOW wire).



BOTTOM OF PLUG:

Solder the long BLACK wire to the third pin from the left (right next to the WHITE wire).



TOP OF PLUG:

Only perform this step if you purchased the Deluxe HDMI Adapter (with either the TOSLINK or COAXIAL port).

Turn the plug over so that you are looking at the top.

Solder the ORANGE wire to the third pin from the right (right next to the long BLACK wire).



At this point, take a close look at all your soldering to ensure that none of the pins are erroneously touching (soldered to) an adjacent pin. Use a magnifying glass, microscope, camera, a jeweler's eye loupe, multimeter, or whatever you have on hand to confirm.

Now, we move on to the PCB side but first, we have to remove the PCB (carefully) from the original Wii2HDMI enclosure.



Start by slicing into the side with your X-ACTO knife.

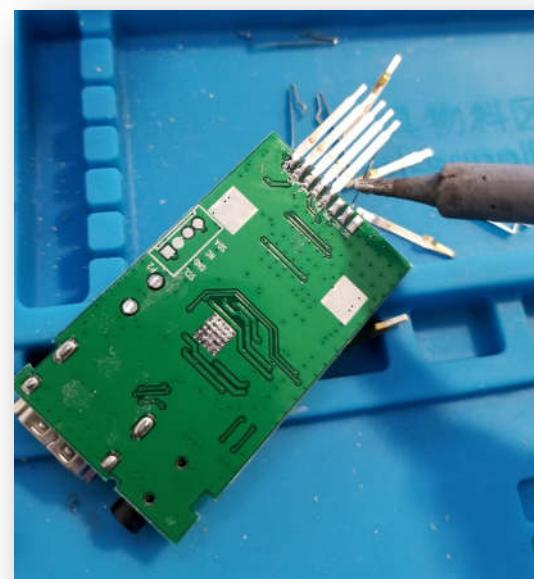
Cut all the way around and then pull lightly on the grey plug until it separates from the enclosure.



With a gentle pull, the plastic grey plug comes right off.



With the tip of the soldering iron, touch the base of each metal pin. (They will immediately pop off!)

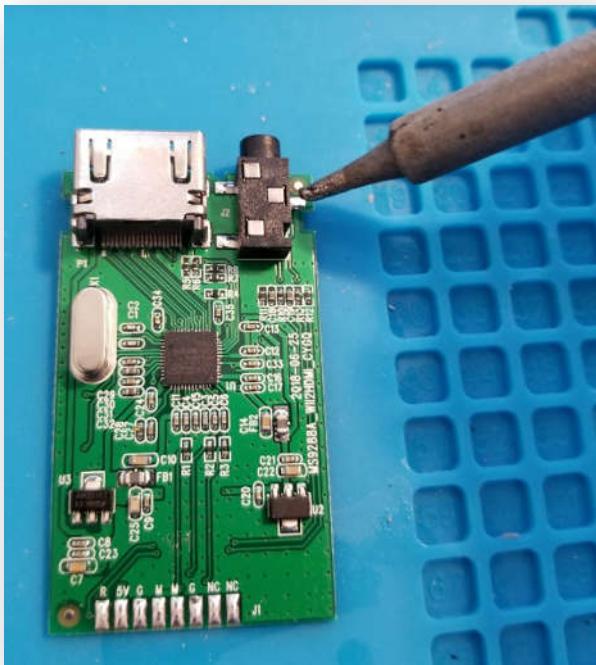




Once all the pins are removed, add some new solder to the EIGHT pads on either side of the PCB.

Helpful
Tips

Make the pads nice and shiny by adding flux before soldering.



It's time to get rid of that little audio port.

While touching the tip of the soldering iron to the right-most pad (as displayed in the photo), pull up on it with your fingers to lift it off the PCB.





Wiggle the audio port back and forth until it breaks off.

(This is totally okay for this project as we don't need any of the three pads that are associated with this audio port. Go ahead and break that baby off!)



Once it is off, we need to ensure that the area is flat and clean. Use a wick, soldering iron and flux to remove any remaining solder off the three pads where the audio plug was.

Clean the area with the Isopropyl Alcohol.



You are now ready to solder the wires onto the PCB.

Orient each part so that you are looking at the BOTTOMS (as shown in the below photo). Always keep the plug and PCB orientation the same. (There is never going to be a reason to have one showing the top and the other showing the bottom.)

As I am right-handed, I'll be using the soldering iron in my right hand so this is the best placement (on my mat) for me:



Note: the orientation used in the next steps will differ than the actual orientation so that the pictures may fit better in this guide.

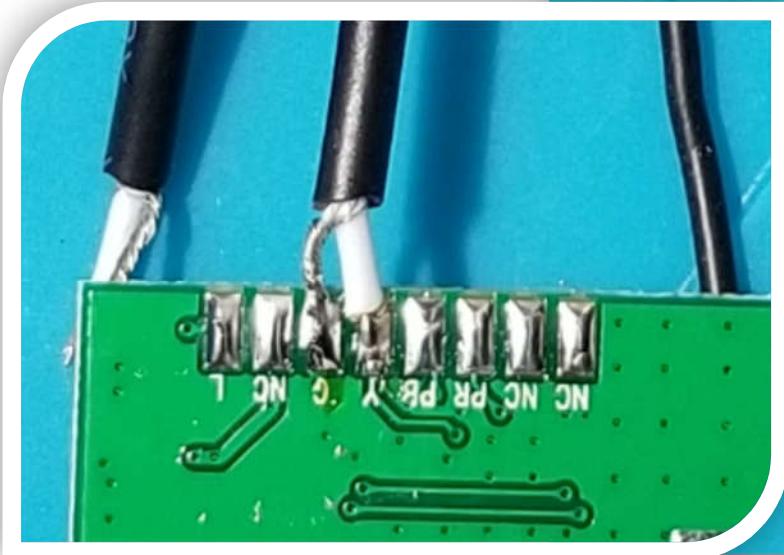
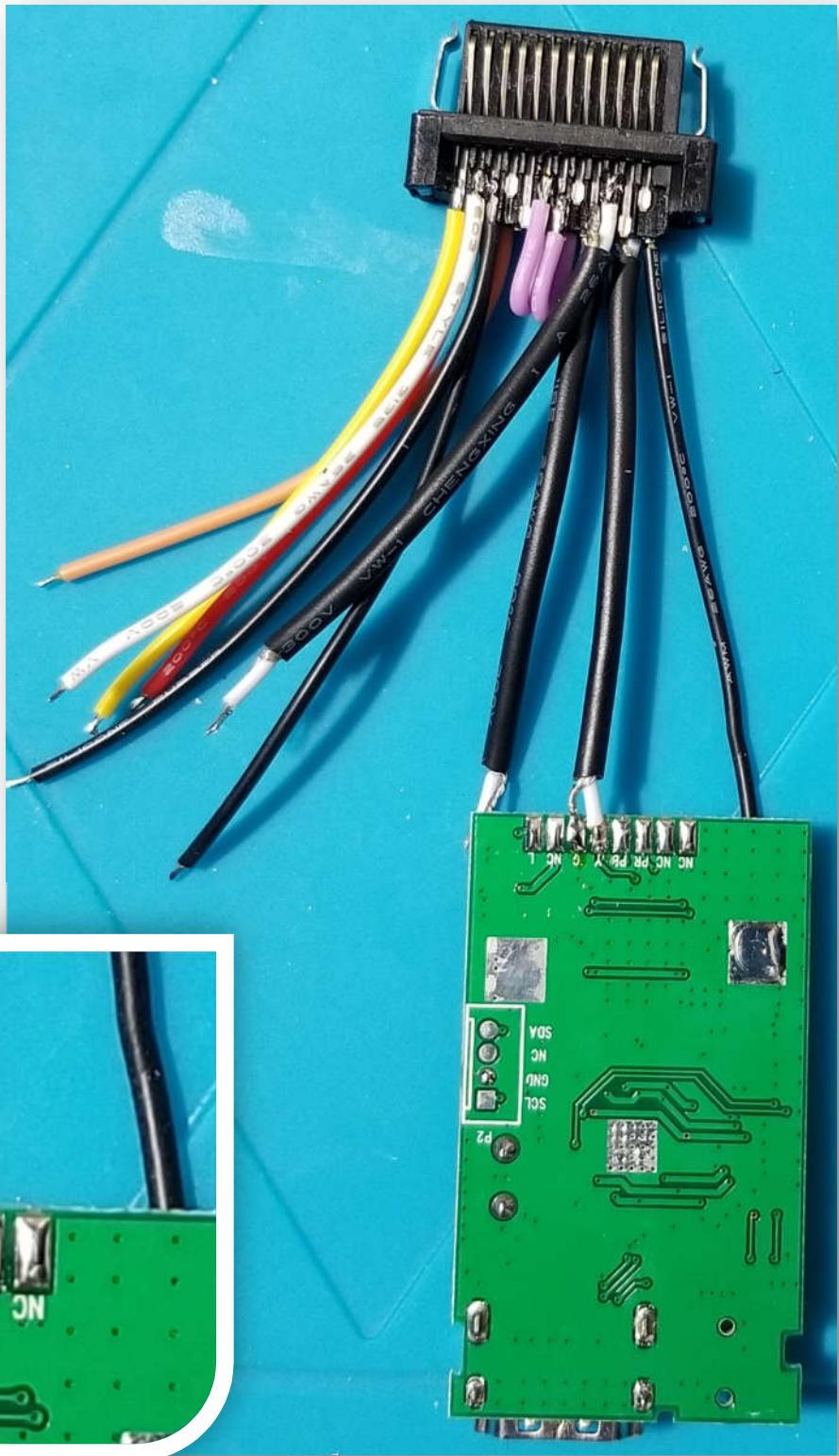
BOTTOM OF PLUG:

Solder the inner wire of the Y cable to the PCB pad marked with a "Y". If there is no "Y" marked, it gets soldered to the same position indicated in the picture (4th pad from the left).

Solder its outer wire to the pad marked "G" (3rd pad from the left).

Helpful Tips

If you have forgotten which shielded cable is the "Y" cable, please look back in this guide to where you soldered it on.



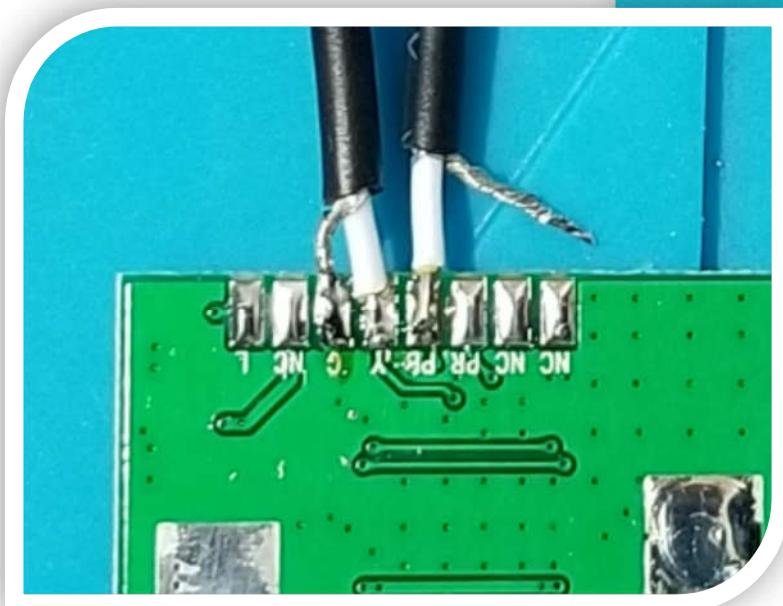
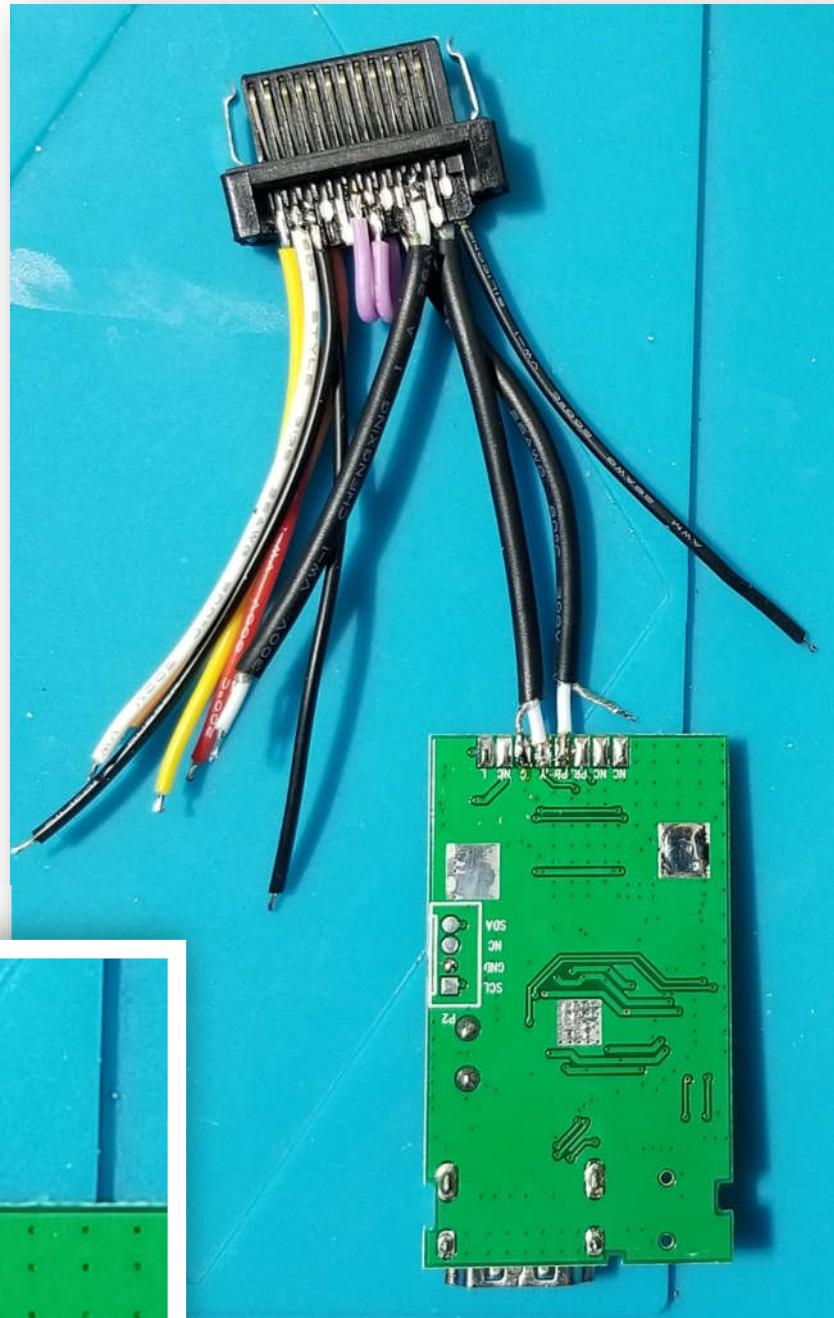
BOTTOM OF PLUG:

Solder the inner wire of the PB cable to the pad marked with a PB. If there is no "PB" marked, it gets soldered to the same position indicated in the picture (4th pad from the right).

At this time, you will not solder on its outer wire.

Helpful Tips

If you have forgotten which shielded cable is the "PB" cable, please look back in this guide to where you soldered it on.



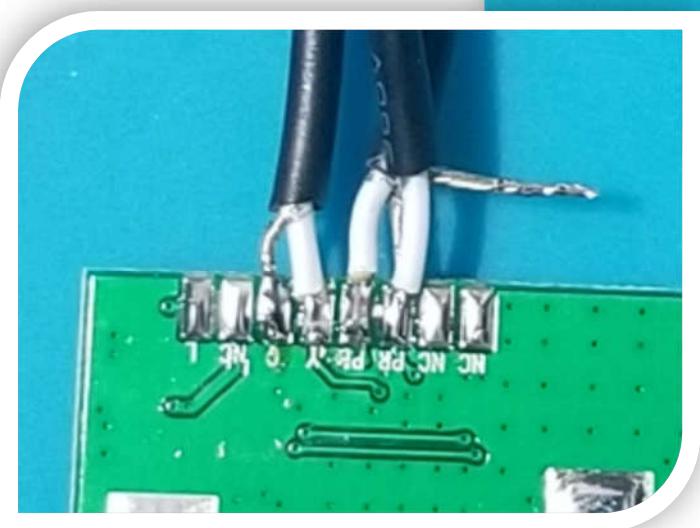
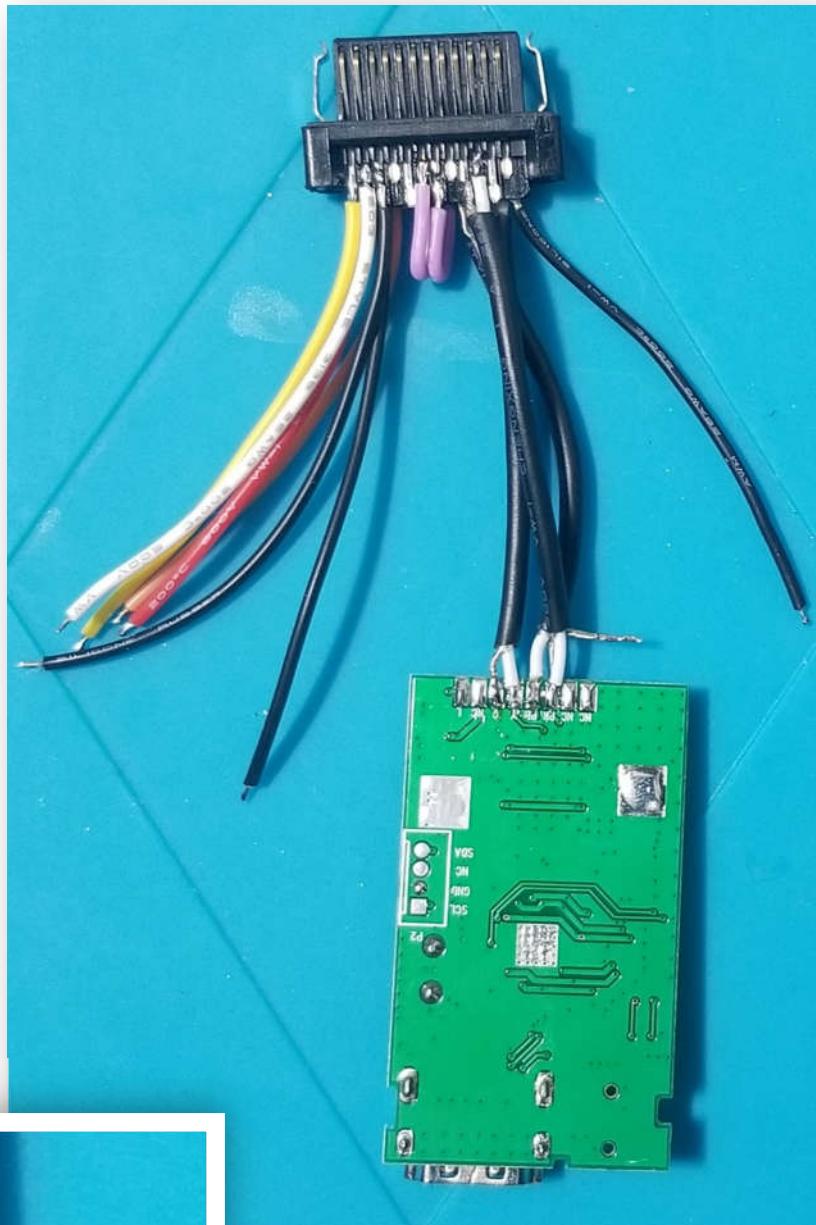
BOTTOM OF PLUG:

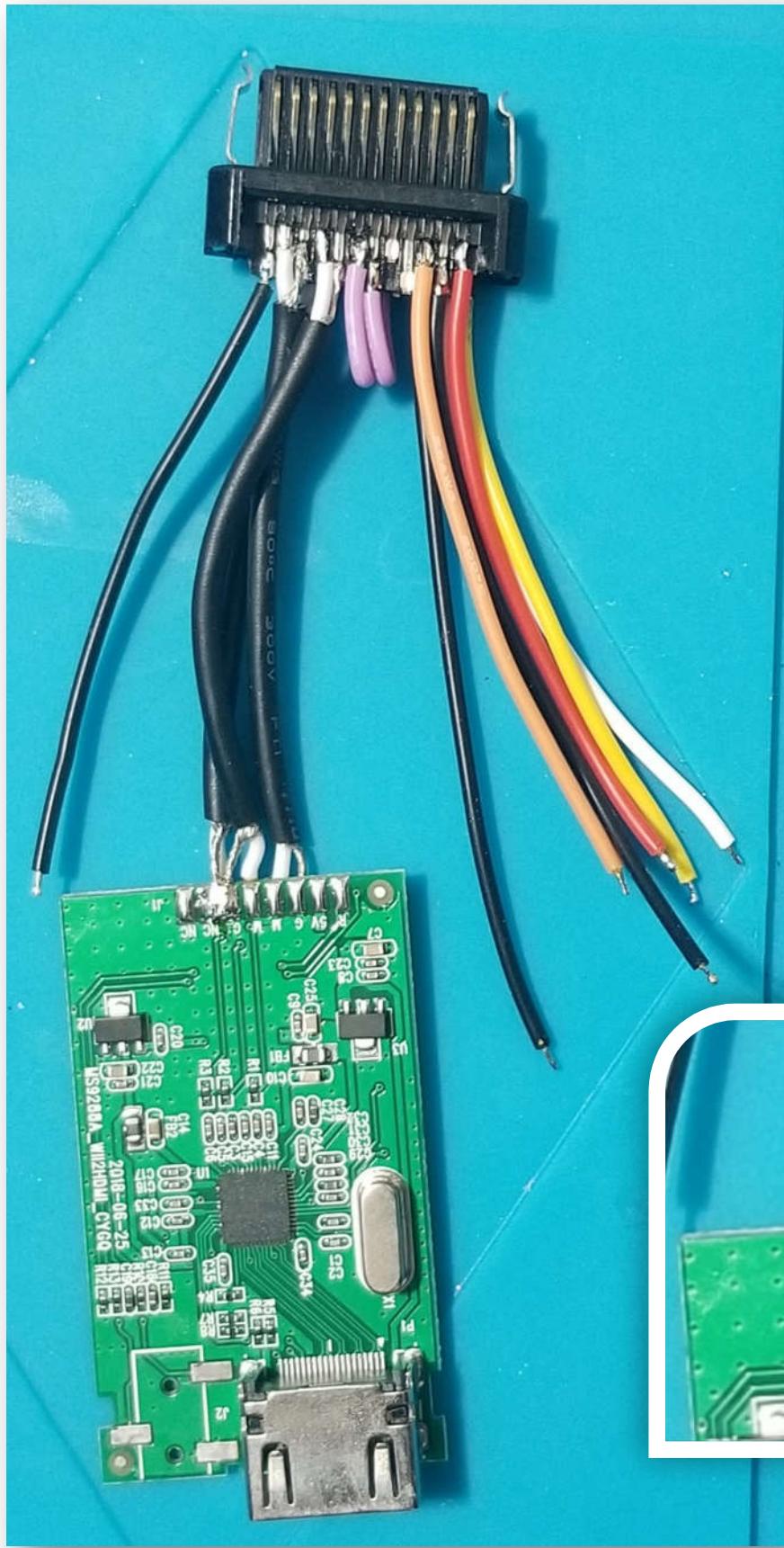
Solder the inner wire of the PR cable to the pad marked with a PR. If there is no "PR" marked, it gets soldered to the same position indicated in the picture (4th pad from the right).

At this time, you will not solder on its outer wire.

Helpful Tips

If you have forgotten which shielded cable is the "PR" cable, please look back in this guide to where you soldered it on.





TOP OF PLUG:

Flip everything over and solder the two outer wires (from PR and PB cables) to the G pad (3rd pad from the left). As shown in the photo, you can also bridge solder both the G and the adjacent NC (2nd pad from the left) pads to make a stronger connection.



BOTTOM OF PLUG:

Turn over and solder both of the long BLACK wires to the large pad on the bottom of the PCB.

It is easier to tin the large pad first.

3
Helpful
Tips

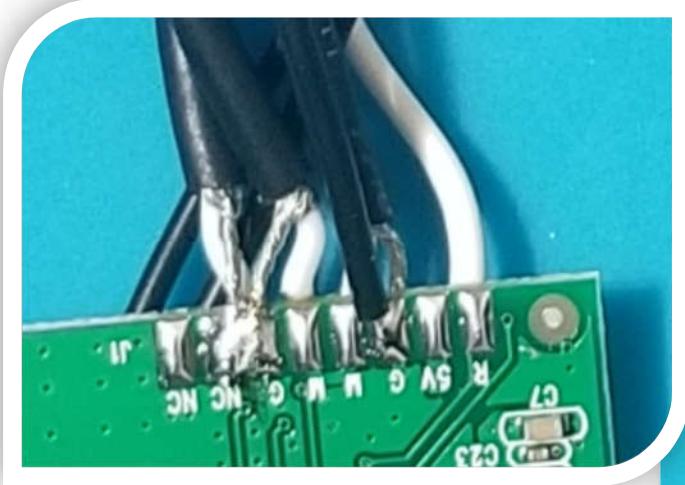
BOTTOM OF PLUG:

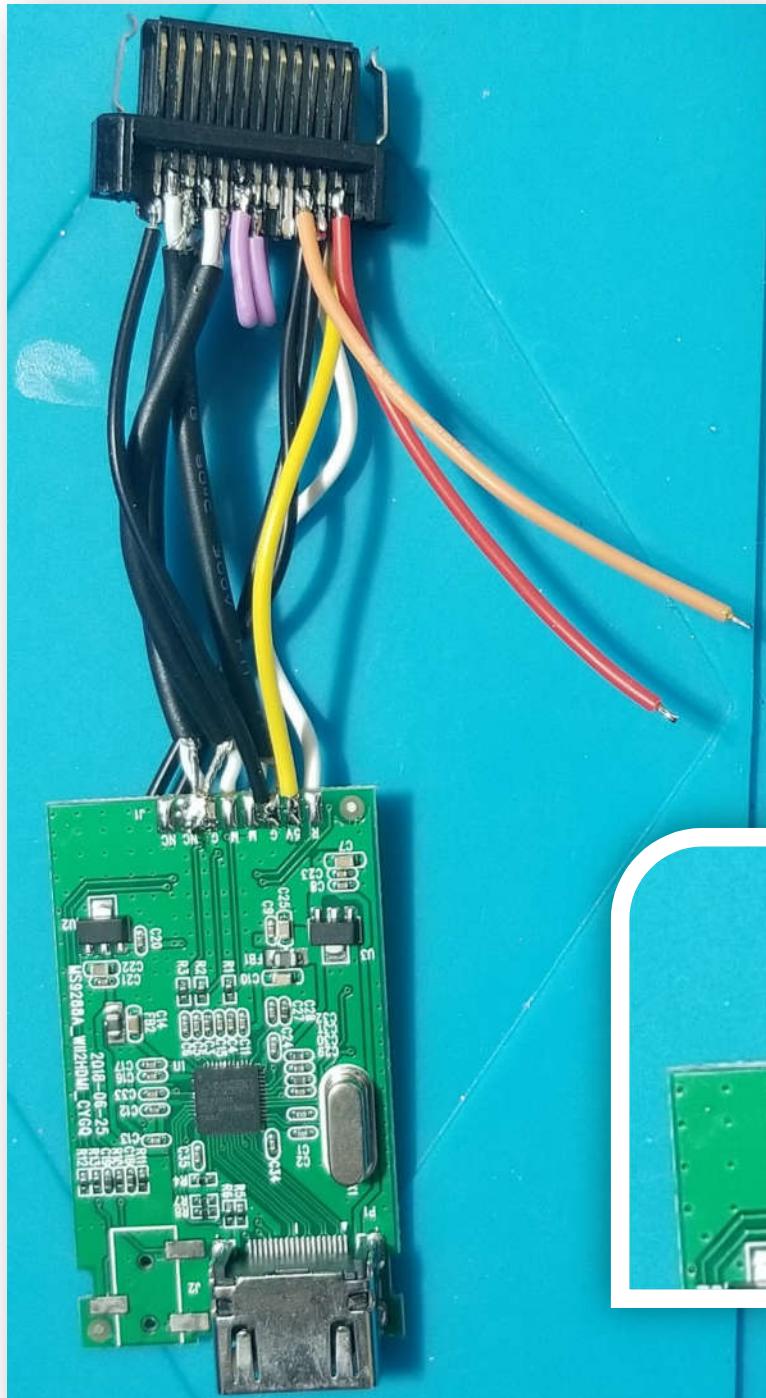
Solder the WHITE wire to the 1st pad on the left.



TOP OF PLUG:

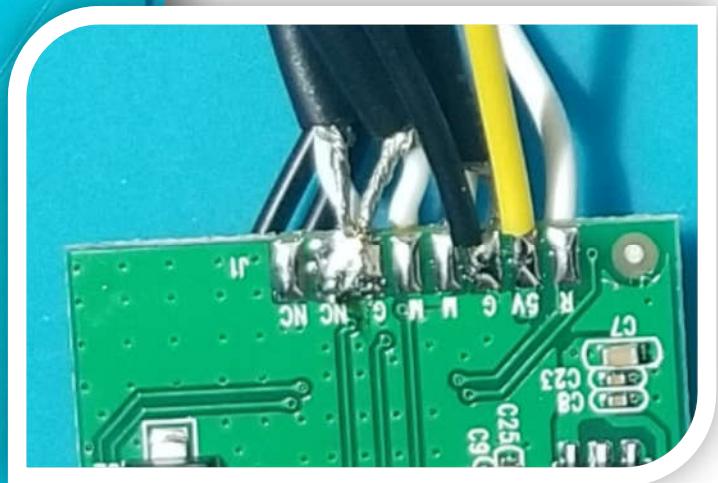
Turn over and solder the short BLACK wire to the G pad (3rd pad from the right).





TOP OF PLUG:

Solder the YELLOW wire to the 5V pad (2nd pad from the right).

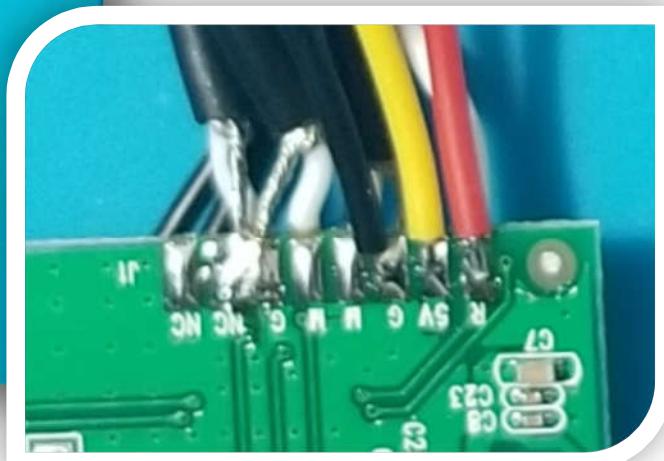




TOP OF PLUG:

Solder the RED wire to the R pad (1st pad on the right).

Now, if you didn't buy the Deluxe HDMI kit (with either the TOSLINK or COAXIAL port) then you won't have an ORANGE wire and you are done soldering.



TOP OF PLUG:

Only perform this step if you purchased the Deluxe HDMI Adapter (with either the TOSLINK or COAXIAL port).

If you bought the TOSLINK version then you will have a short BLACK and YELLOW wire remaining (in addition to the ORANGE wire that is already soldered onto the plug).

If you bought the COAXIAL version then you will only have a BLACK wire remaining (in addition to the ORANGE wire that is already soldered onto the plug).



TOP OF PLUG:

Only perform this step if you purchased the Deluxe HDMI Adapter (with the TOSLINK port).

Solder the YELLOW wire on top of the YELLOW wire that is already soldered on the 5V pad (2nd pad from the right). Be careful not to inadvertently flow solder onto an adjacent pad.

TOP OF PLUG:

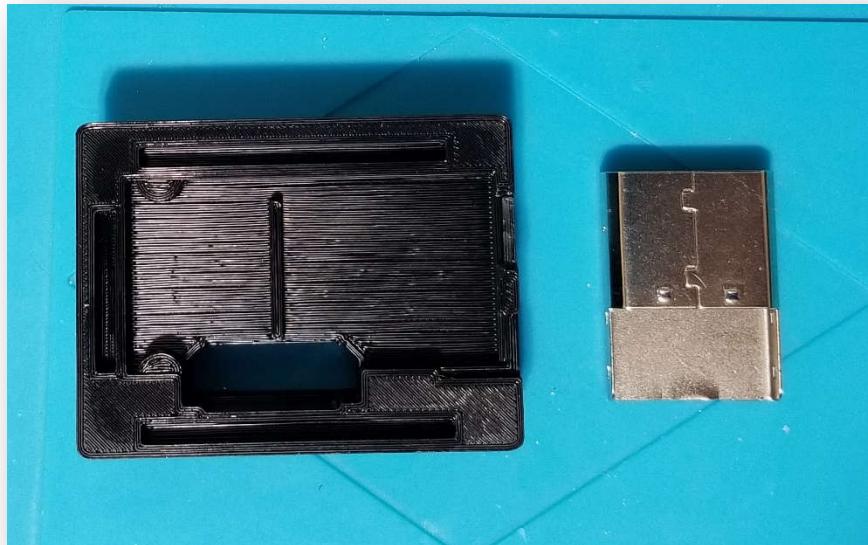
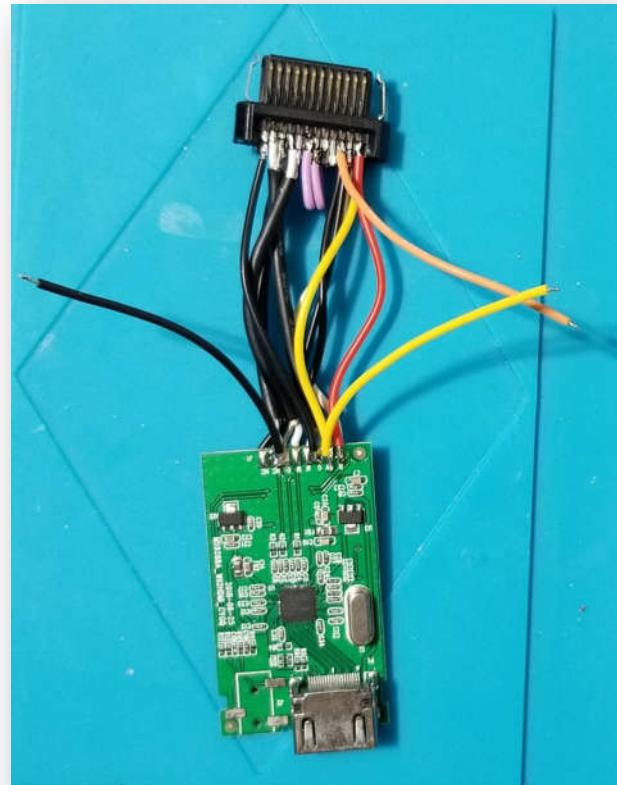
Only perform this step if you purchased the Deluxe HDMI Adapter (with the TOSLINK or COAXIAL port).

* If you purchased the Deluxe kit with the COAXIAL port then you won't have the extra yellow wire (shown in the photo).

Solder the BLACK wire on top of any G pad. The photo shows that the BLACK wire was soldered onto the third pad from the left.

Helpful Tips

Before continuing on to the next part of the guide, plug your adapter into the Xbox (keeping any loose wires under control and away from each other) and connect it to your TV with an HDMI cable. Test for sound and video quality. If anything is wrong, now's your time to go back and recheck your soldering.



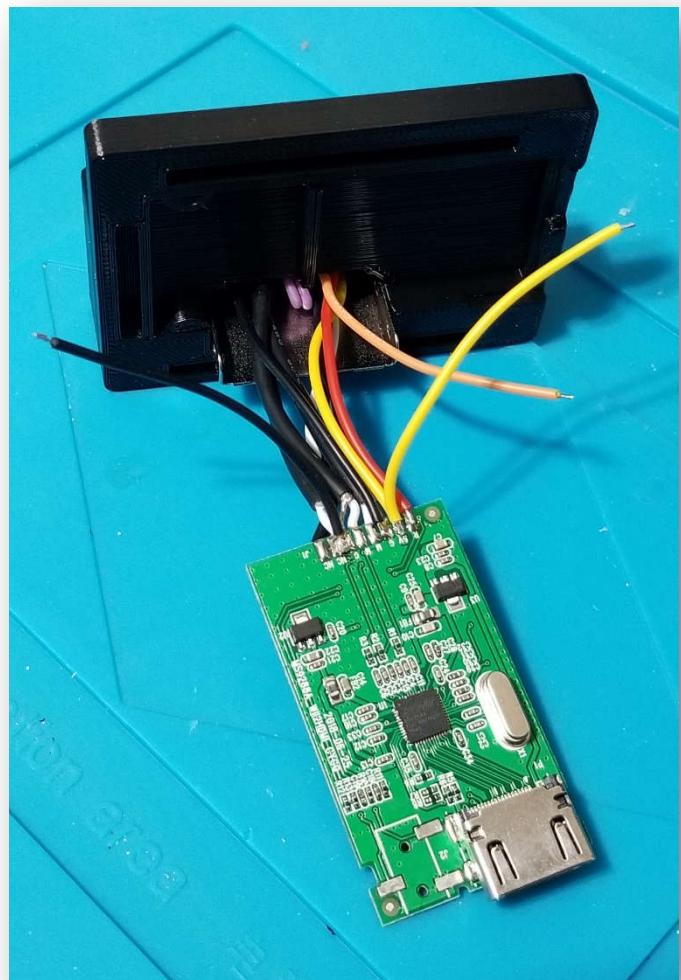
At this point, you are ready to start putting the main parts together.

Start with these two pieces.

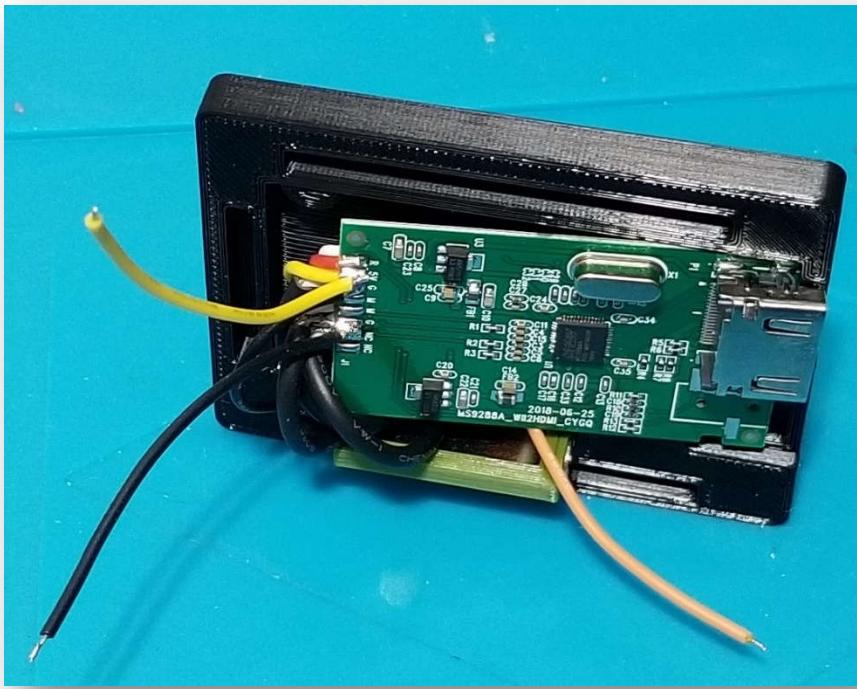
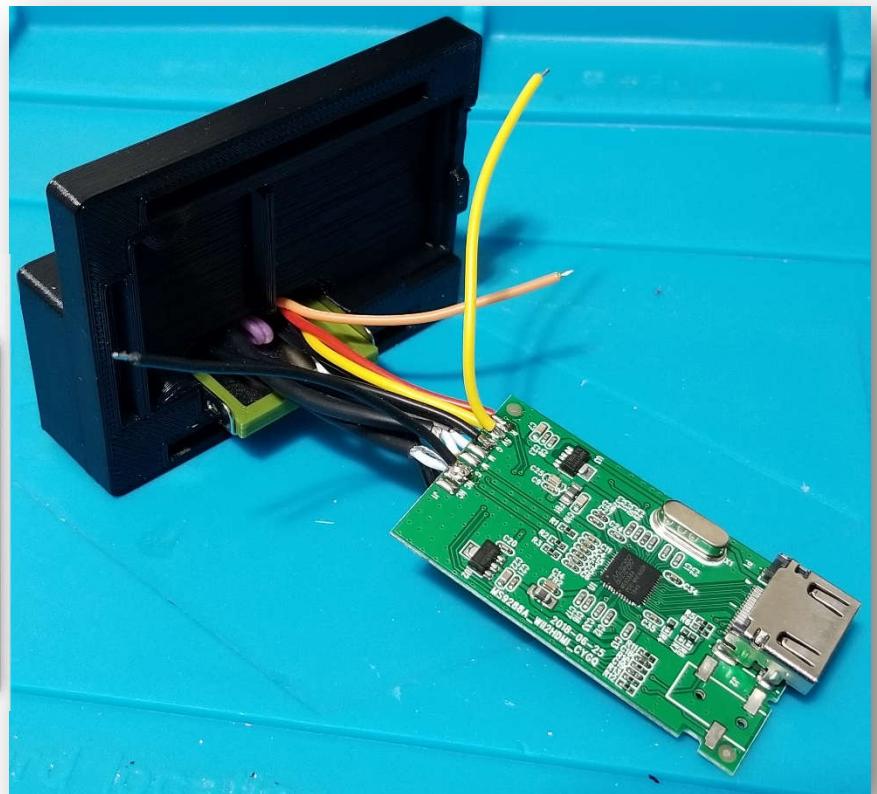
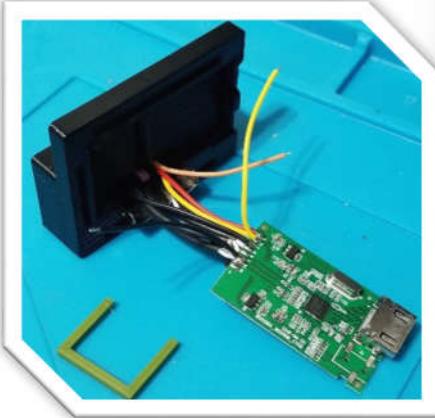
Insert the metal plug shield into the enclosure until it is fully seated.



Insert the plastic plug (with the metal pins) inside the metal plug shield.



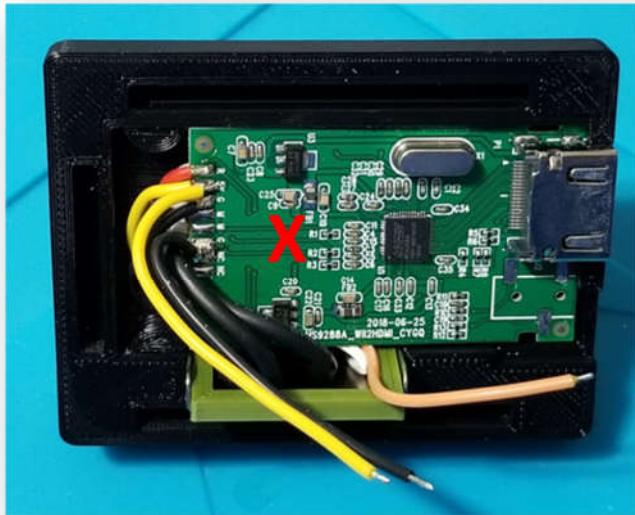
Next, insert the U-shaped stopper inside the plug as shown in the picture.



Slowly rotate the PCB into position, tucking the bottom left corner under the three large shielded video cables.

If you installed the ORANGE wire then tuck it through the bottom.

Then, push the right side of the PCB underneath the little lip of the enclosure.



Push the rest of the PCB into place.

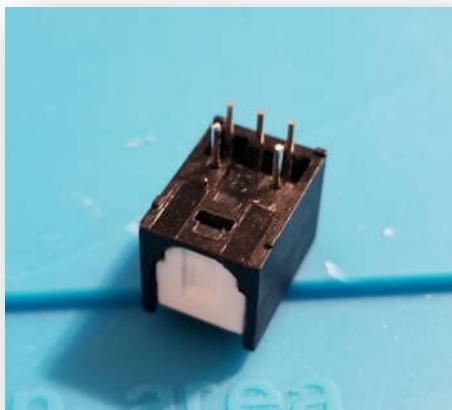
The end result will be similar to what is shown in the picture.

Ensure to keep all wires away from the area marked with a red X.

If you have not purchased the Deluxe HDMI kit then you may skip over the TOSLINK and COAXIAL sections below.

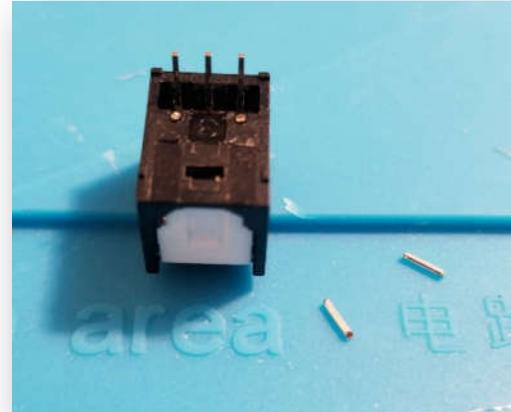
TOSLINK Digital Audio Upgrade

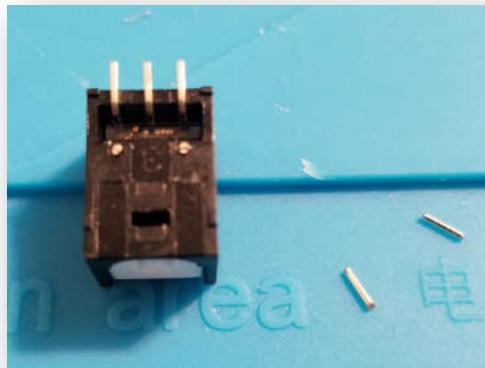
The optical TOSLINK transmitter is included in the Deluxe HDMI Adapter kit and it adds the ability to use 5.1 Digital audio (e.g. through a home theatre system).



Proceed with this section only if you have the TOSLINK transmitter.

TOP VIEW: Start by cutting the two thick posts.





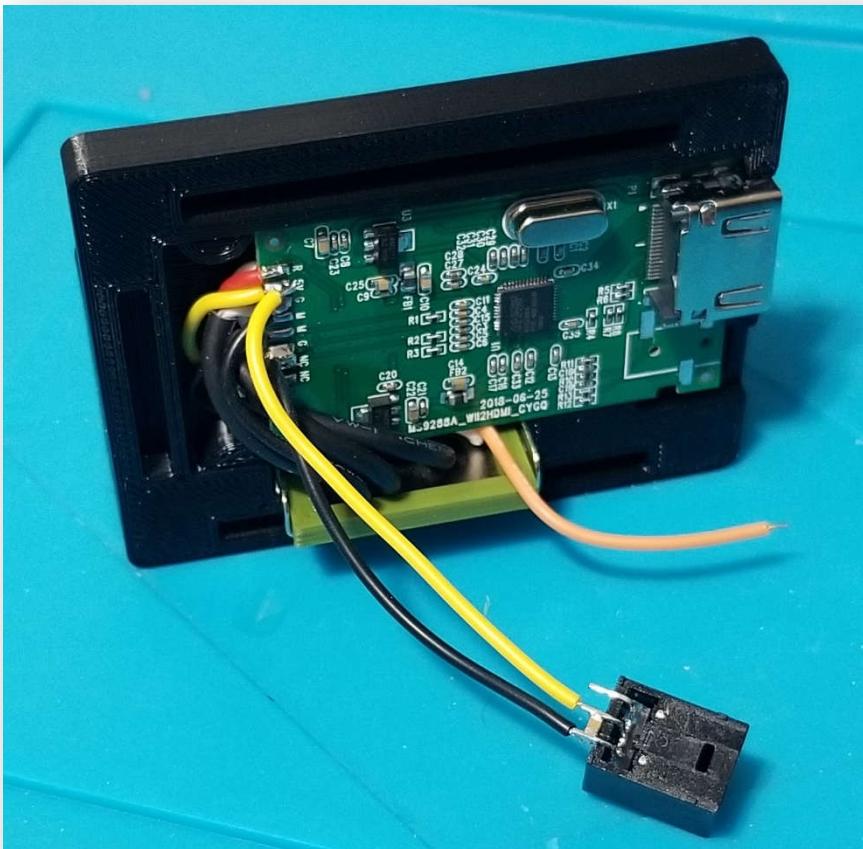
TOP VIEW: Bend the three pins flat.



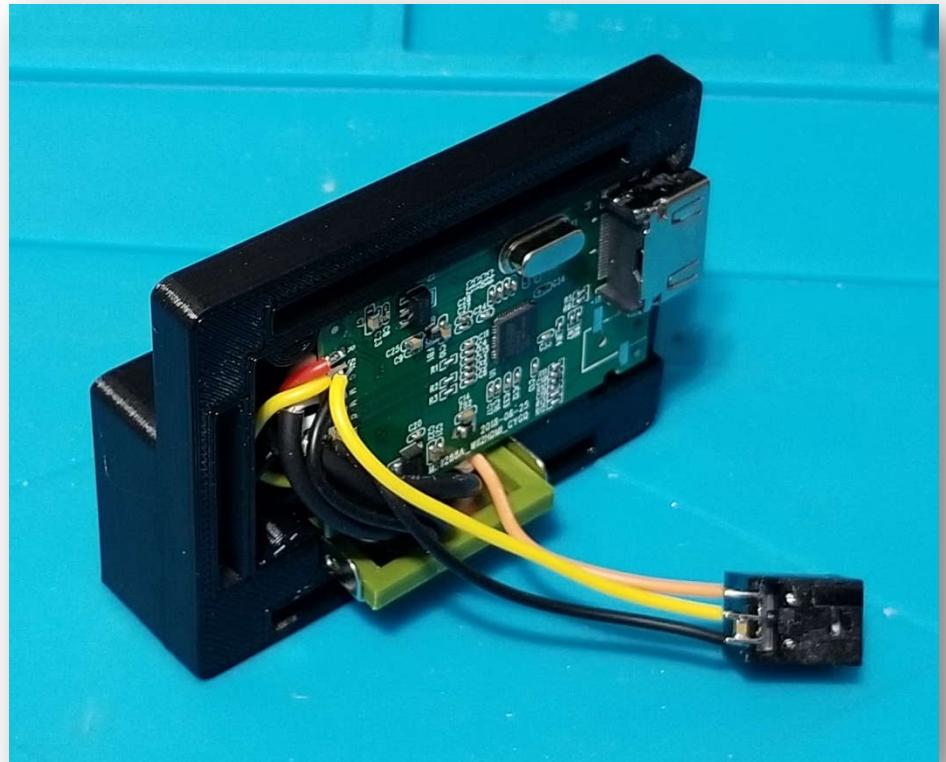
BOTTOM VIEW: Flip the TOSLINK transmitter over and solder the tiny CAPACITOR as shown in the picture to the right.



Solder the BLACK wire to the pin indicated in the photo.



Solder the
YELLOW wire to
the middle pin
(indicated in the
photo).



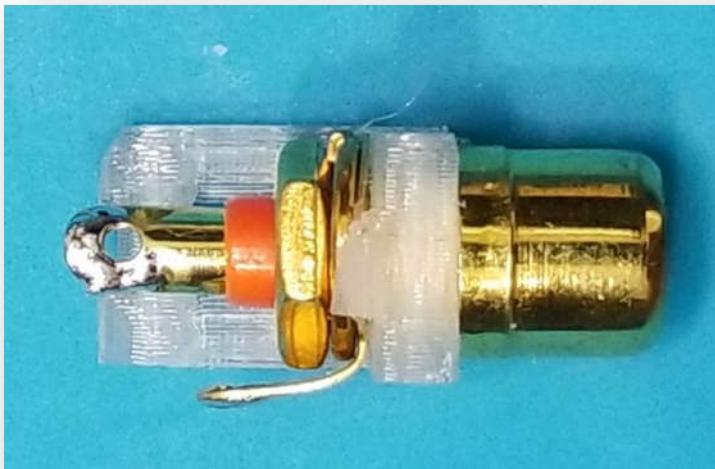
Solder the ORANGE wire to the last pin (indicated in the photo).

COAXIAL Digital Audio Upgrade

Proceed with this section only if you have the COAXIAL upgrade.

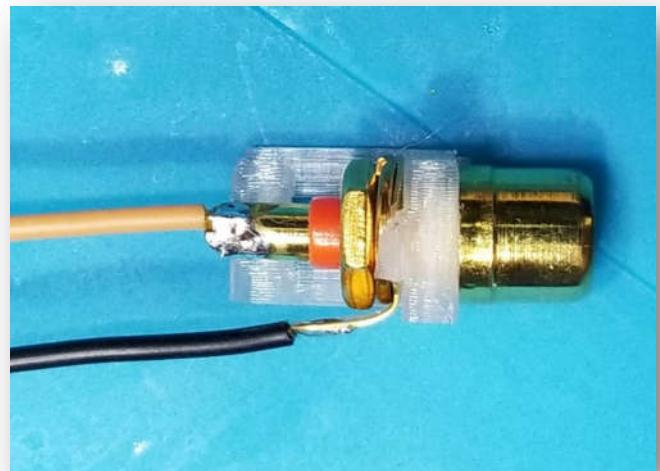
A coaxial digital audio connection is used to send S/PDIF digital audio signals between devices. It is similar to the TOSLINK port except it is not powered (so only a digital signal line and a ground wire is needed). It too adds 5.1 digital audio that can be used in equipment such as a home theatre system.

All that is required is to solder the BLACK wire to the outside of the COAXIAL plug and the ORANGE to the centre of the COAXIAL plug.



Tin the inner and outer solder points.

Solder the ORANGE wire to the centre point and the BLACK wire to the outer point.





The soldered port gets inserted into the other half of the enclosure as shown in the photo. (You may need to remove the blank plug if one was shipped with your kit.) You could add a dab of Krazy glue to hold it in place.

* Please note that a 3D printed white port and a 3D printed black enclosure were used in this guide because it is easier to distinguish the two different pieces that connect together. (Port colour will be matched to the enclosure colour in the actual kits.)

Final Assembly



Before adding any glue to permanently bond the enclosure sides together, test the adapter with the Xbox and HDTV again. Recheck your soldering if you have any problems.

Slowly push the two enclosure parts together while ensuring that the internal wires are not being pinched anywhere.

Helpful Tips

I like to add a little Krazy Glue (Gorilla glue) around the TOSLINK transmitter and to the inside lips where the bottom enclosure fits into the top.

Clamp it all together and wait the recommended amount of time for the glue to set.

Final thoughts

Well, I hope you enjoyed this project. Feel free to check out the other items I have for sale on my Facebook page ([link at the top of this guide](#)).

Never hesitate to reach out to me whether it is to say hello or to ask a question.

Until next time, my friend...

- TEK Nemesis