

# How to turn a Mouse into an Arcade Trackball Interface

First of all, let me assure you that this is a very simple hack.

I obtained all of my information by looking at many different tutorials on the web & doing a little experimenting on my own

Here is my attempt to combine all of the info that I have found, figured out & used into one quick & easy tutorial that will cover connecting an arcade trackball to a mouse from start to finish.

Special thanks goes out to all of those who have posted their tips on BYOAC & on their own web pages.

Please note that this hack has worked for me using two different types of mice with absolutely not ill effects, however if you decide to give it a try, I am not responsible for any damage that may occur to you or your system as a result.

With that said, here goes...

Open up your Ps2 or USB mouse, remove the PCB & de-solder & remove all of the button switches as well as the two 3-pin optical receivers (one per axis / it's square & black).

One optical receiver is for the X-axis & the other is for the Y axis.

To do this, I recommend using a desoldering braid or a solder sucker - the braid works best in my opinion.

BTW: X-Axis = Left/Right & Y-Axis = Up/Down

Note: It is not necessary to remove the 2-pin optical transmitter (the little 2-pin LED opposite the optical receiver).

Next, solder your leads to the two outer pins where each optical receiver used to be.

These are your X & Y data leads that tells the cursor which way to go.

Note: It is always best to use flux when soldering, as this helps the solder to flow evenly to the right places.

Now, to get power, solder one lead to the center pin where either of the receivers used to be.

Either would be fine & you can even solder one lead to each of the two center pins if you like, but there is really no need since the power comes from the same circuit (redundant but ok).

This will supply the +5v required by the optics in your arcade trackball to function.

For a ground simply use one of the common ground terminals located where any of the button switches used to be.

This is easy to locate since the switch grounds will all be attached together on front edge of the PCB.

Now grab a 6-pin female Molex connector from Radio Shack or wherever.

The pin-outs for the Molex should be as follows for the three most popular brands of arcade trackballs (Happ, Wico & Imperial) both 2.25" & 3":

**Black = Ground**

**Red = +5v**

**Yellow = X-Axis**

**Green = X-Axis**

**Blue = Y-Axis**

**Purple or Gray = Y-Axis**

Next, crimp your six leads to the Molex pins.

You may want to solder the connectors to the wire for added security, just remember to use the FLUX Luke...

Note: If you used two +5v leads (one for each receiver) join them together at the Molex pin.

Now, dry fit your six leads onto the corresponding pins on your trackball Molex connector.

Be sure that your +5v & your ground match the trackball leads & that none of the pins are touching each other before you go any further; you don't want to damage your mouse or your computer.

Now plug your contraption in and test it.

Odds are one or both of your axis may be reversed.

If this is so, simply swap the two wires around for that corresponding axis (be sure that you don't touch any of the other pins – it may even be a good idea to remove the mouse before you do this)

Once your directions are correct you may fully insert the female pins into your Molex (after you unplug the thing from your PC/Mac). There you have it!

But now that the trackball is working properly, you want buttons, right?

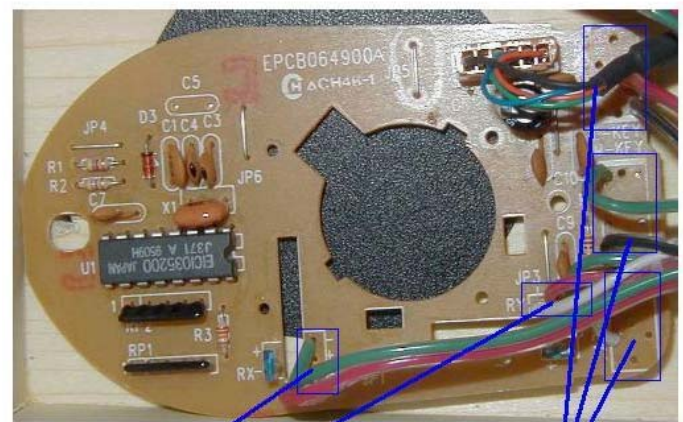
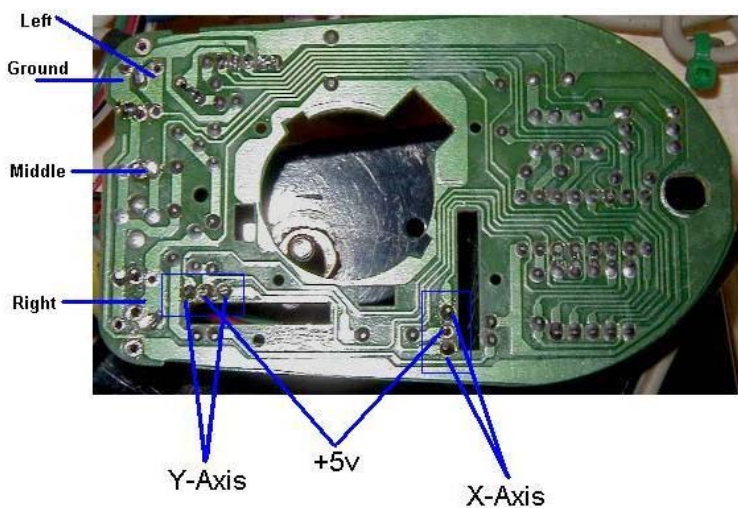
For this, all you need to do is simply solder one lead per switch & then one lead to the common ground, attach your female quick disconnects & your done.

This simple hack works for some spinners as well however the pin-outs may be different.

Hope this helps & Good Luck!

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## Mouse to Trackball Hack



Optical Receivers



Button Switches

### Trackball Molex Pin-outs

Green Blue Purple



Ground = Black  
 +5v = Red  
 X-Axis = Yellow & Green  
 Y-Axis = Blue & purple

Black Red Yellow



Desoldering Braid



Dry Fit



USB Version In Project Enclosure



Soldering Flux