immortal
JOYSTICKS

Immortal Joystick V2 – Self-build Guide

Kit Contents and Tools

Your self-build kit will include the following parts:

- 1 x Pre-Machined Metal Enclosure
- 4 x Cross Head Enclosure Screws
- 1 x Sanwa JLX2 Joystick Lever Mechanism
- 2 x 30mm Arcade Buttons (Sanwa or Seimitsu depending on your colour choice)
- 1 x 35mm Arcade Ball Top (Sanwa or Seimitsu depending on your colour choice)
- 1 x Round Joystick Lever Dust Cover
- 2 x 15mm Round Rocker Switches
- 1 x Immortal Joysticks PCB
- 1 x GX16 Cable
- 1 x Joystick Lever Cable
- 1 x Switch Cable
- 4 x M3 Hex Head Screws
- 4 x Self Adhesive Rubber Feet
- 1 x DB9 to GX16 Braided Cable

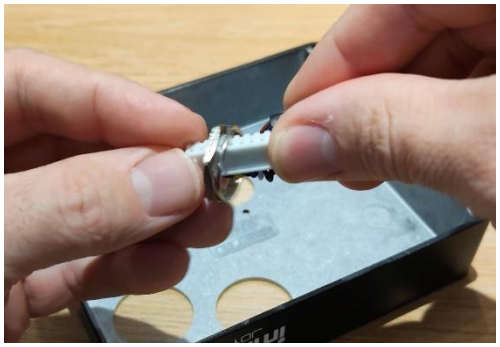
Tools you may need to complete the build include:

- Cross Head Screwdriver
- Flat Head Screwdriver
- 2 x Adjustable Spanners
- Pliers
- Allen Key (Hex Key)
- Soldering Iron
- Solder
- Joystick Tester

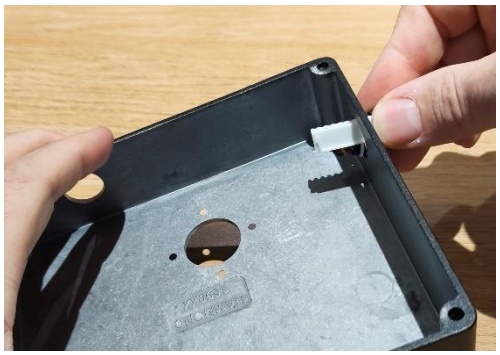
PLEASE ENSURE YOU READ THROUGH EACH STEP IN FULL BEFORE YOU START!

Step 1 – Fit the GX16 Cable

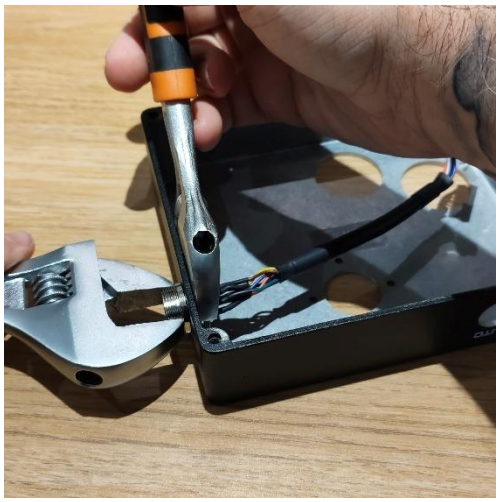
You must first remove the nut and washer from the cable. It is best to fold the connector sideways to be able to do this.



Once you have removed the nut and washer, feed the cable through the hole on the side of the enclosure.

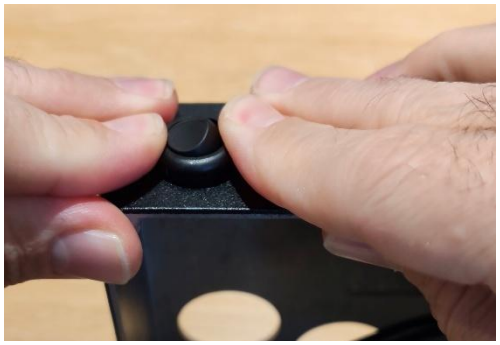


Then put the nut and washer back on the cable and tighten the nut using a couple of adjustable spanners. Ensure that the GX16 socket is correctly oriented with the key on the top side.

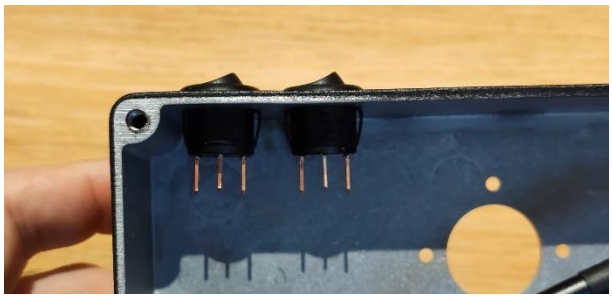


Step 2 – Fit the Rocker Switches

The rocker switches clip into the holes marked ‘Map’ and ‘Auto’. They are push-fit, so push them in firmly from the outside, trying to keep them level as they go in.



Ensure that the terminals are neatly aligned inside to make fitting the cables simpler later and the switches easier to operate.



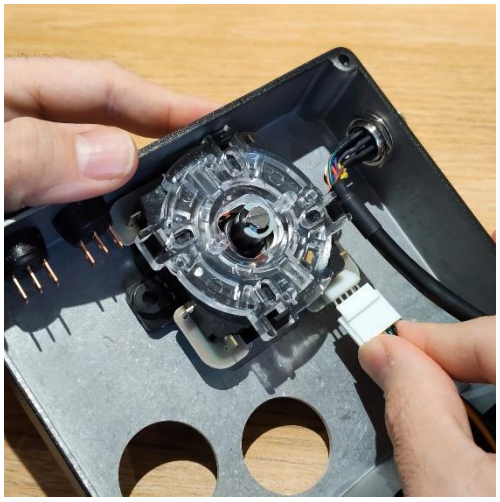
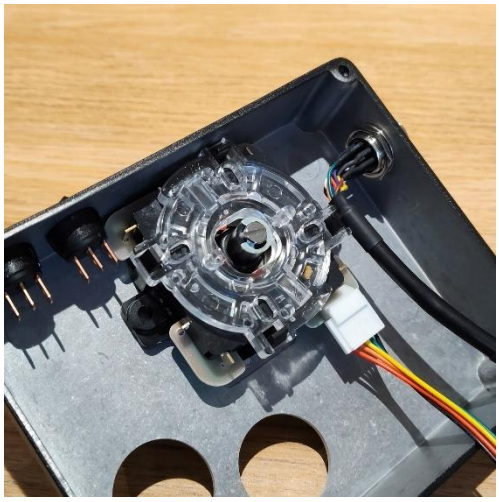
Step 3 – Fit the Joystick Lever

Hold the joystick lever in place with the pins on the microswitch PCB are facing downwards as shown. While holding the lever in place, drop the hex head screws in place on the top of the enclosure.

The screws can then be tightened using an allen key (hex key).

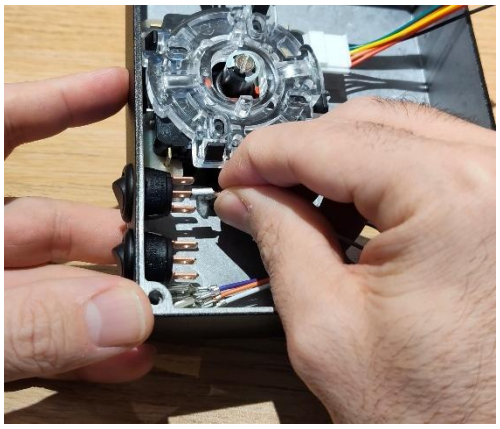
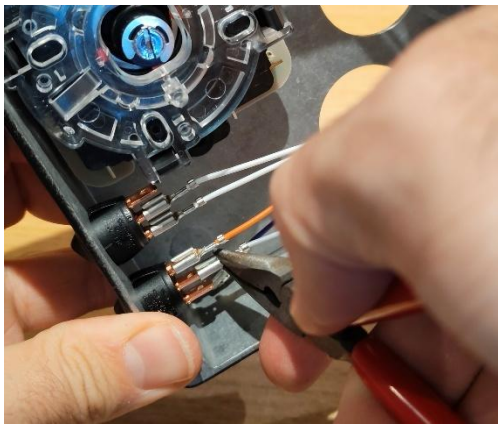

Step 4 – Connect the Joystick Lever Cable

The Joystick Lever Cable simply clips into place as shown.

Step 5 – Connect the Switch Cable

The switch cable is a series of 5 spade terminals that push onto the back of the switches. You may find it easier to use some pliers to carefully push the spade terminals into place.

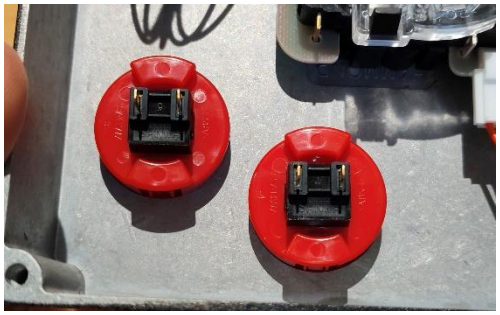
The order of the wires on the terminals varies depending on the Joystick layout you have chosen. If you have chosen Joystick left, Buttons right, the order of the terminals from left to right is as follows; Purple, Grey, Orange, White, White, Not Connected (as pictured below).

If you have chosen Joystick Right, Buttons left, the order of the terminals from left to right is as follows; White, White, Not Connected, Purple, Grey, Orange.

Step 6 - Fit the Arcade Buttons

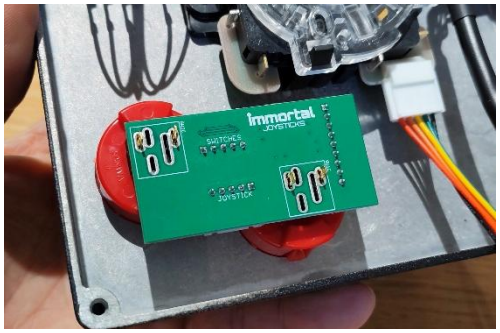
The 30mm Arcade Buttons are simply push fit. Press them into the holes on the top of the enclosure from the outside. Please take note of the orientation shown in the photos below!

The orientation of the buttons is really important as the PCB needs to fit over the terminals. For Sanwa buttons ensure that the terminals are oriented vertically, with the Sanwa logo on the microswitch at the bottom as pictured left below. For the Seimitsu buttons again ensure that the terminals are oriented vertically with the Seimitsu logo on the underside of the button at the bottom as pictured right below.

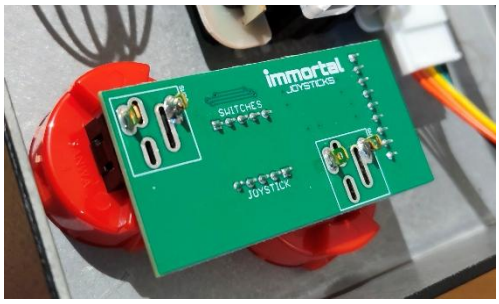


Step 7 – Solder the PCB in Place

Providing you have correctly oriented the buttons in Step 7, the PCB should just drop into place over the terminals. If your joystick layout is joystick left, buttons right the PCB will be parts side facing down. If the layout is joystick right, buttons left the PCB will be parts side facing up.

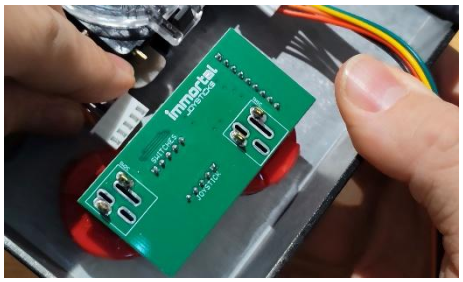


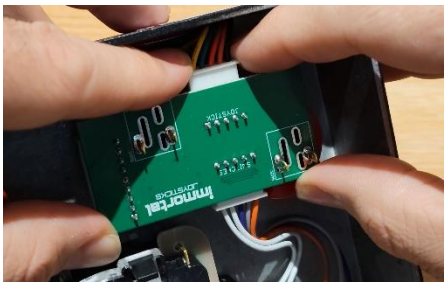
Once the PCB is in place, solder each terminal to the PCB in turn.

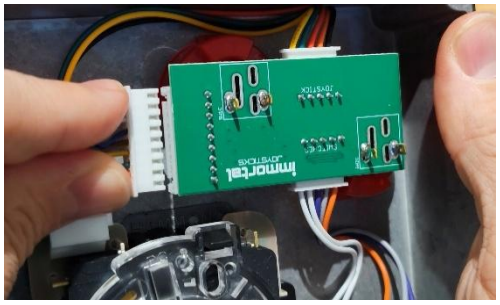


Step 8 – Connect the Cables to the PCB

The cables clip into place in each of the terminals on the PCB. The cable from the switches connects to the terminal marked ‘switches’, the cable from the joystick lever connects to the terminal marked 'joystick’ and the GX16 cable connects to the final 9 pin terminal.



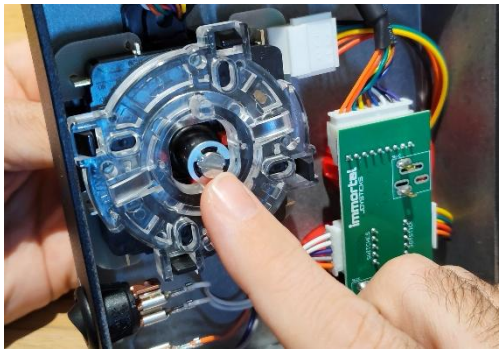
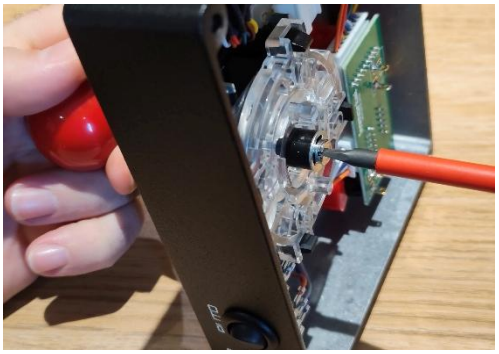




Step 9 – Fit the Dust Cover and Ball Top

Drop the dust cover loosely into place and screw the ball top finger tight onto the top of the joystick shaft.


Whilst holding onto the ball top, use a flat head screwdriver on the bottom of the joystick shaft to tighten the ball top and stop it from coming loose during use.

Step 10 – Attach the Feet

The feet are self-adhesive. Peel them from the backing paper and stick them in place on the bottom plate of the joystick enclosure.


Step 11 – Screw the Enclosure Closed

Place the base plate onto the bottom of the enclosure and use a cross head screwdriver to screw in the four enclosure screws.

Your Immortal Joystick V2 should now be fully assembled!

Step 12 – Attach the DB9 to GX16 Braided Cable and Test

The GX16 end of the cable pushes into the GX16 socket on the side of the joystick and screws into place. It is then suggested that you use a joystick tester to check all the functions of the joystick before connecting it to any expensive retro machines.