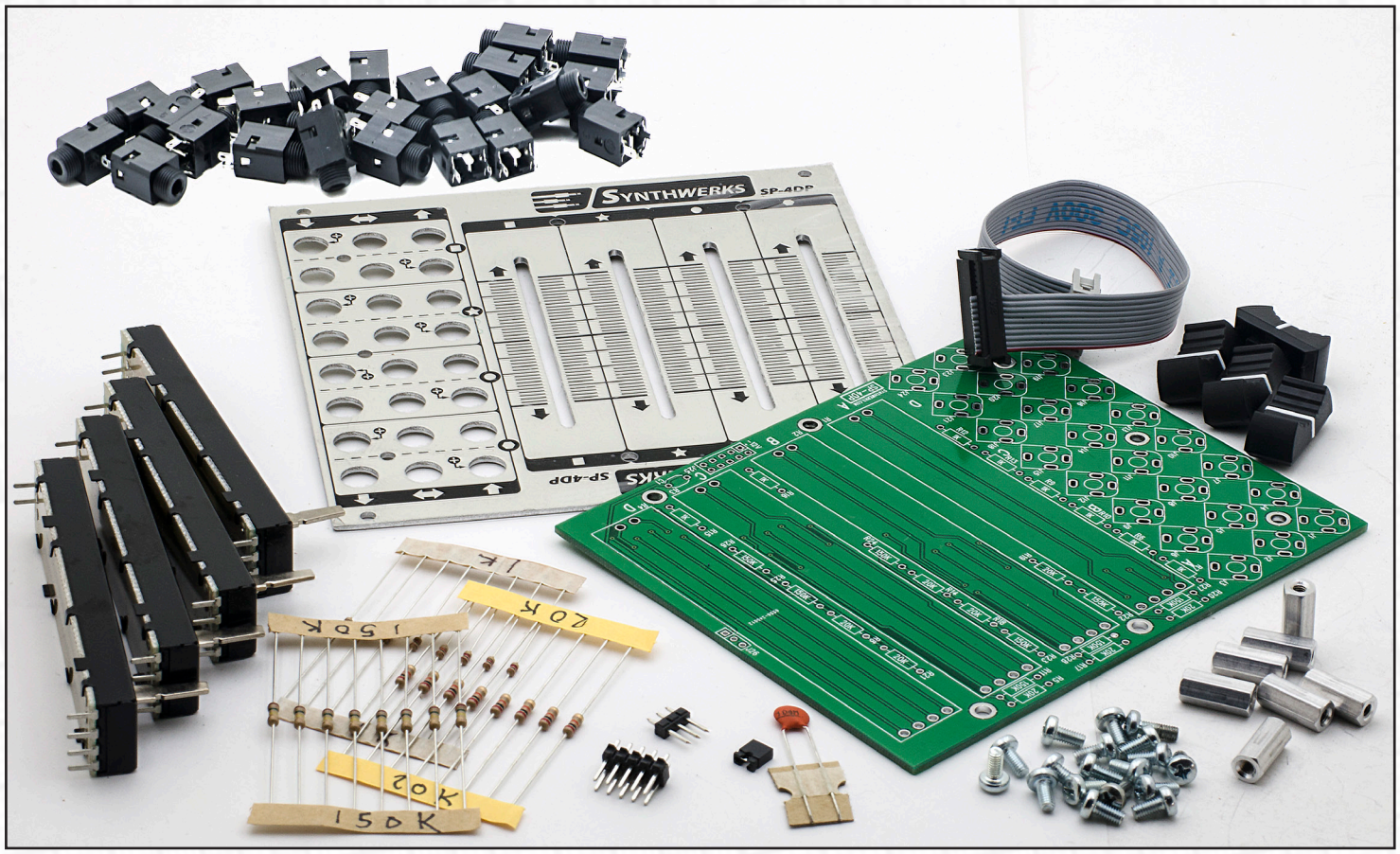
SYNTHWERKS

SP-4DP Quad Dual Slide Pot Eurorack Module Kit

Assembly Instructions

These instructions offer a step-by-step assembly procedure for constructing a **Synth*werks* SP-4DP Quad Dual Slide Pot Module**. It assumes the builder has the basic knowledge and tools to do the job of soldering and assembling this project. Every builder has their own methods of working on a project like this, this instruction manual should be read through for some tricks we have learned to make this project's construction a bit easier. Aligning and soldering the 24 jacks can be tricky and this procedure will make that much easier.



1. PARTS COUNT AND PACKAGE INSPECTION

The first thing to do is to see that you have a complete kit and have all the parts. The kit should contain these parts, in these quantities:

ONE – **Synth*werks* SP-4DP** Aluminum Front Panel
ONE – **Synth*werks* SP-4DP** Dual Layer PCB
ONE – .1uF Ceramic Capacitor
ONE – 0.1", 3-Position Single Row Header
ONE – 2-Position Shunt Jumper
ONE – 0.1", 10-Position Dual Row Header
ONE – 16-Position to 10-Position Ribbon cable

FOUR – Black Slide Pot Knobs
FOUR – 100k Dual Linear Slide Pots
SEVEN – Hex Female-Female Standoffs
EIGHT – 1K (Brown, Black, Red) Resistors
EIGHT – 20K (Red, Black, Orange) Resistors
EIGHT – 150K (Brown, Green, Yellow) Resistors
EIGHTEEN – M3 x 6MM Pan Head Phillips Screws
TWENTY FOUR – 3.5mm Mono Switched jacks

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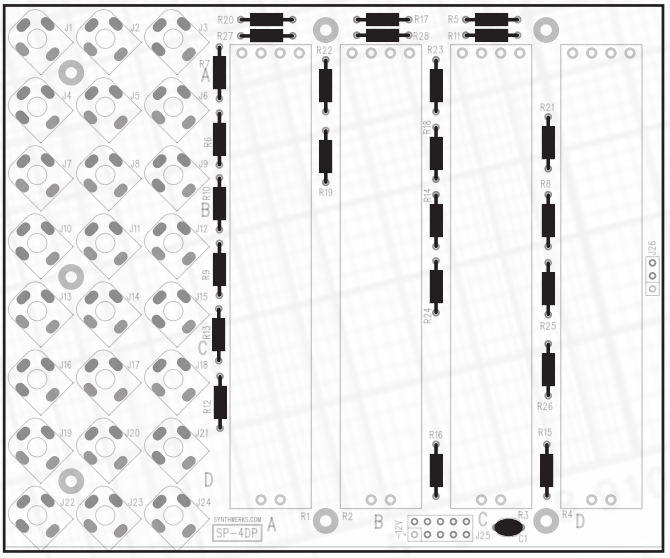
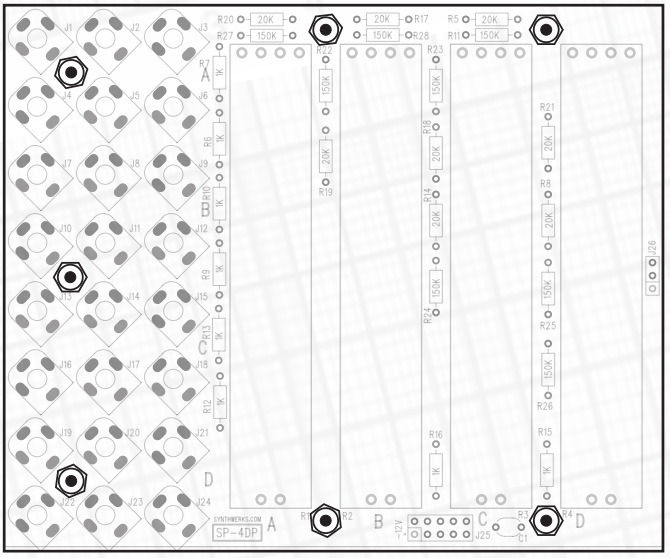
2. THE RESISTORS AND THE CAPACITOR

The standard way to build a PCB assembly by hand, is to start with the shortest parts on the board. This allows the board to lay somewhat flat when flipped over and soldered. We will try to stick to this procedure but will deviate at points because of the unique nature of some of the parts being used. Installing the resistors is pretty simple. The values are printed on the PCB to make this easier. Solder and clip one value at a time to lessen possible mistakes. Save the Capacitor for the last as it is much taller than the resistors. ***TIP - If you do not have a resistor bending tool in your tool chest, the Jacks in this kit can be used for this purpose. The narrow width of the jack body is the same as the resistor spacing used on the PCB.***



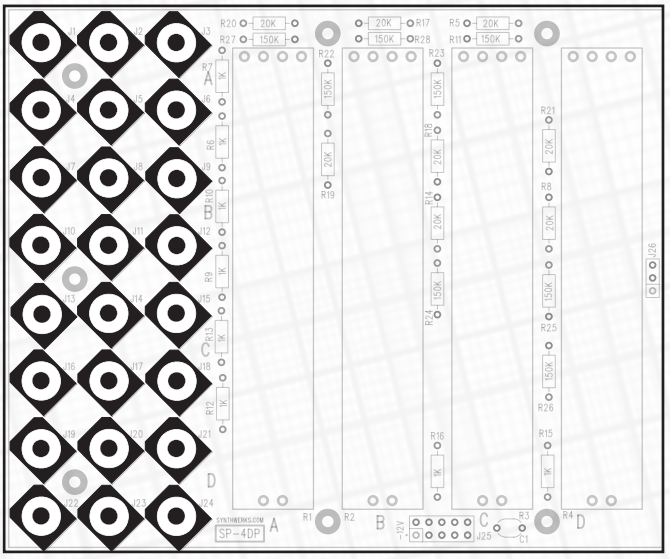
3. THE HEX STANDOFFS

You may wonder why the Standoffs are done now instead of later. There are two reasons for this. One, the three standoffs that are in the middle of the jack field would be very hard to install after the jacks are there, and two, they help immensely in the alignment and installation of the jacks themselves. The screws come in from the back and the standoffs are on the parts side of the PCB. Try and make these as tight as you can because adjusting the ones in the jack field may be hard after the jacks are installed.



4. THE JACK FIELD

This may be the most complicated part of the assembly. After the standoffs are installed, lay the PCB assembly on a smooth, flat surface, standoofs facing upward. Insert the jacks into the PCB holes. Make sure to orient them as per the graphics on the PCB. The standoff screw heads should leave plenty of room under the PCB for the jack terminals. After all the jacks are set in their holes, lay the front panel over the jacks and wiggle the panel slowly and align the jacks to the holes in the front panel. ***TIP - A pencil or other tool can help in pulling stubborn jacks into alignment.*** After the jacks are all through the front panel holes, temporarily screw the front panel to the center standoff in the jack field, and one of the standoffs on the other end of the PCB. Now you can flip the whole assembly over and solder the jacks and they won't fall out. Double check that all Jacks are oriented the same way before soldering.



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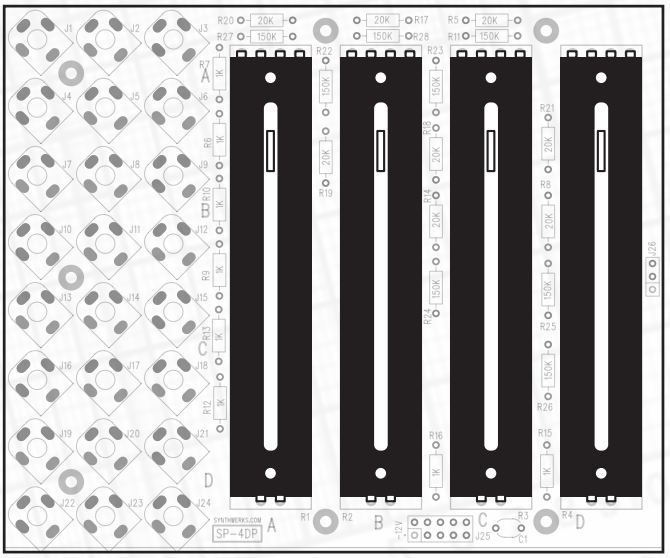
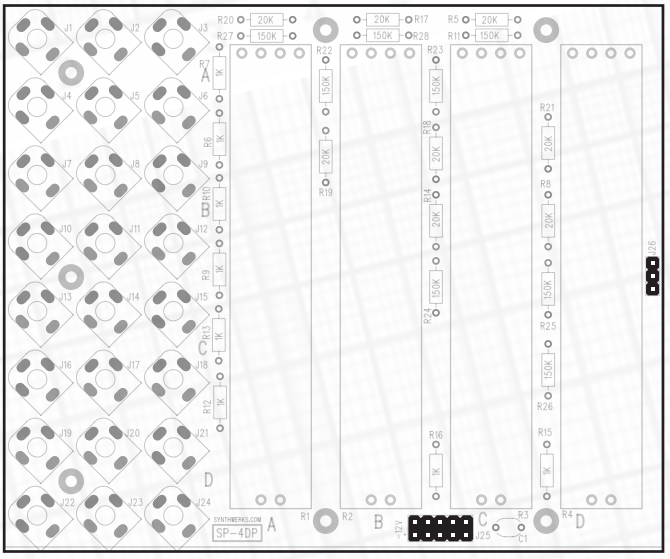
5. THE SLIDEPOTS

Next comes the slidepots. Remove the front panel and place the slidepots into their holes on the PCB. Soldering them in may be tricky depending on items you may, or may not have handy to help out. There are a couple of methods that work well. The first is to insert the pots one at a time and bend their leads to hold them in place for soldering. This works well but may be a problem in the future if you ever need to replace them. The second method is to hold them, one at a time, in place with your hand while tack-soldering one leg on each end to hold them in place till the other legs can be soldered. ***TIP - Put your roll of solder on a stand and bring your soldering iron, the PCB, and parts, to the solder while holding the pots in place.*** The third is to find a thick object that is the size of the space the four slidepot actuators leave when pushed to one end, that would allow you to flip the whole unit over and solder the pots at one time. I found an old piece of foam packing material and cut it to size. This method worked best for me in the production environment.



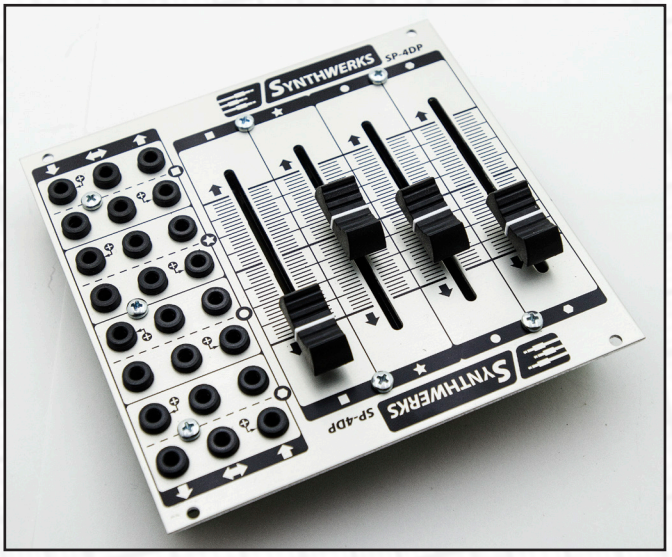
6. THE HEADERS

Now you have a choice to make. The headers can be installed on the parts side of the PCB, or on the solder side of the PCB. The production units have them installed on the solder side as this allows easier access to the voltage output level header, and allows changing the power cable without removing the front panel. The -12V and High/Low markings for both headers are on both sides of the PCB to make this easier.



4. FINAL ASSEMBLY

All that is left to do at this point is put on the front panel, knobs, power cable and voltage selection jumper. The front panel comes with a layer of plastic protecting the front surface. This can be removed now by pulling it up from one of the corners. There should be 4 screws left over after installing the front panel and these are for mounting the unit in your cabinet. The Power cable should be connected with it's stripe on the end with -12V on the PCB. If you install the cable backwards, the unit will not be damaged. The DC function will go from 0V to -V instead.



For operating instructions, please refer to the ***SP-4DP Owners Manual.***

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www.synthwerks.com
info@synthwerks.com