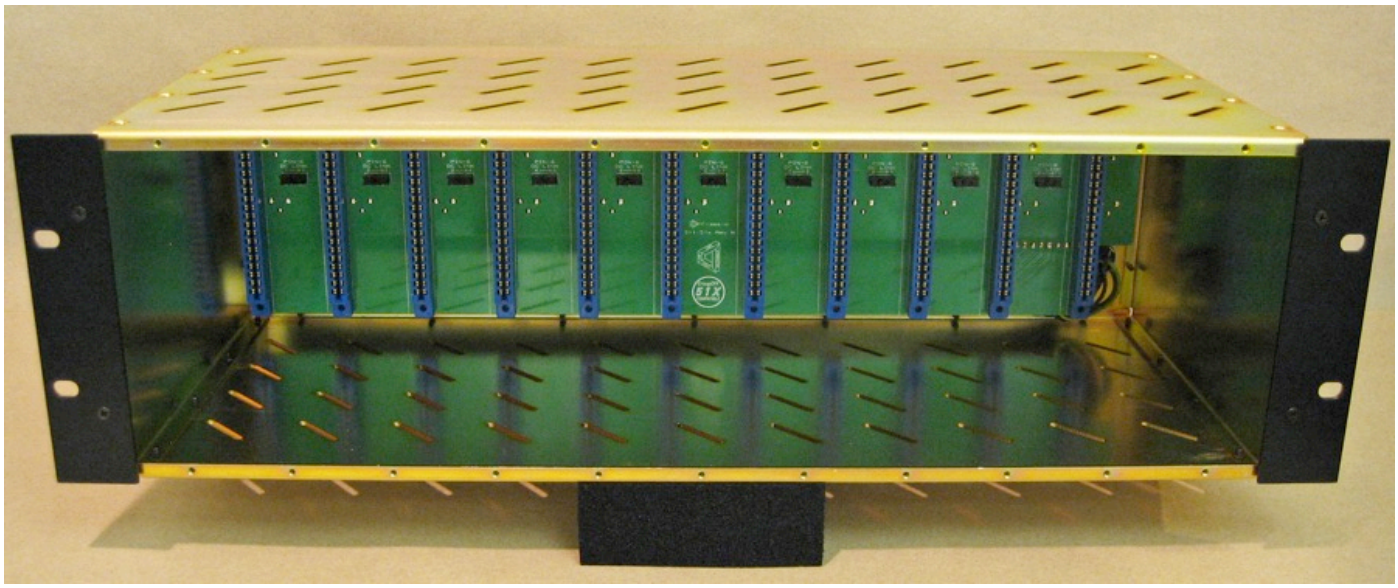
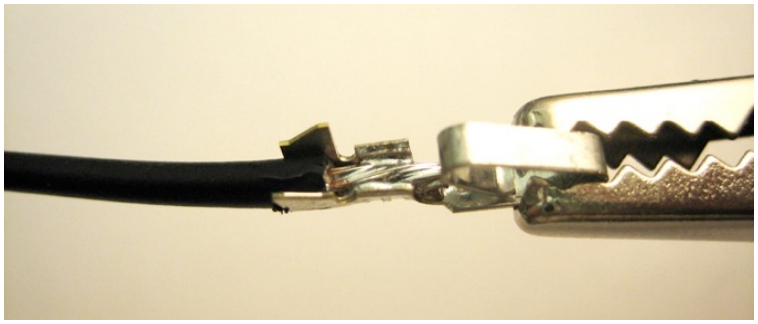
CAPI 51x Eleven-Space Rack



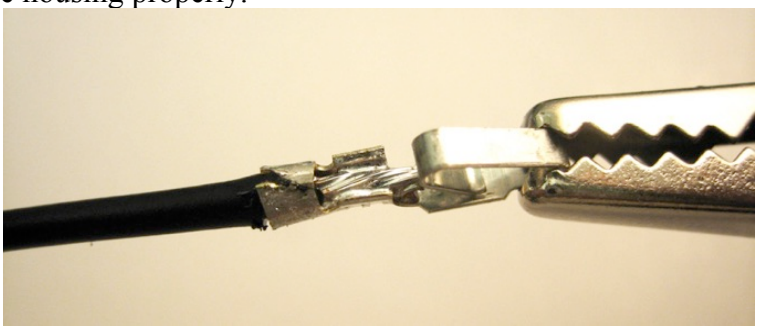
First things first, Neutrik power connector assembly

1. Remove the outer jacket from the short piece of 7-core cable that has been supplied. Cut all of the wires to 3 1/4" (83mm) in length. Strip approximately 3/16” (5mm) from each end of all 7 wires and tin them with solder.

2. Solder one end of each wire to a Molex female contact terminal.



3. Crimp the tabs closed with a needle nose pliers. This must be done or the terminals will not slide into the receptacle housing properly.



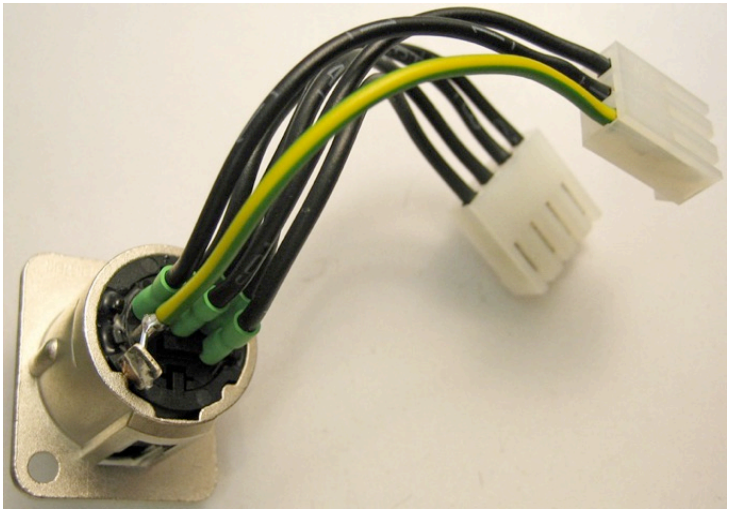
4. Solder a short cutoff lead from a resistor (or similar) to the shell lug of the Neutrik 7-pin connector. Bend and insert the other end of the resistor lead into solder cup #1 of the Neutrik connector. Insert the green/yellow wire into solder cup #1 and solder.

5. If you have some small diameter heat shrink, you can cut 6 pieces approximately 3/8” (9.5mm) long and slip them onto the remaining wires. The heat shrink is not supplied and not 100% necessary. If you do clean work with your wires and soldering, you will have no issues.

6. Solder all of the remaining wires into their respective solder cups of the Neutrik connector. Follow the same legend that is shown at the end of the Floor Box PSU Assembly Aid. Here it is to make things simple. Inspect your work with a magnifier of some sort to make sure you have no stray strands shorting out anywhere.

Wire #1 goes to Neutrik pin #2.
Wire #2 goes to Neutrik pin #3.
Wire #3 goes to Neutrik pin #4.
Wire #4 goes to Neutrik pin #5.
Wire #5 goes to Neutrik pin #6.
Wire #6 goes to Neutrik pin #7.

7. Carefully study the silkscreen legend on the PCB backplane and insert the Mole terminal contacts into the 3 and 4 pin receptacles as required. You can temporarily insert the Molex 7-pin right angle header into the PCB to make sure you know which way the locking tabs on the receptacles go. **DO NOT** solder in the header at this time. Double-check yourself to make sure you have the proper oriental.



8. Insert the power cable assembly into the DC In hole of the 511-Back panel and secure with the supplied hardware. Set the 511-Back panel to the side until later.

PCB backplane assembly

1. Install all 10 DC-Link switches. These are soldered to the front of the PCB backplane. The startup position should be “Off”.

2. Install all 11 of the blue card edge connectors. These are also soldered to the front of the PCB backplane. Make sure they are flat and tight to the PCB. I solder one pin at the top and one pin at the bottom then check to make sure they are positioned properly before soldering the rest of the pins. They should also be centered in and parallel to the silkscreen on the PCB.

3. Install the Molex 7-pin right angle header to the backside of the PCB backplane.

4. Position the PCB backplane assembly so that the card edge connectors are against your table or bench. A flat work surface is required. Locate the Neutrik 3-pin XLR connectors. Insert all 22 connectors into their respective positions at the back of the PCB backplane. Be careful to make sure all of the pins are aligned in their holes before pressing them down. Make sure each connector is flat, tight and even to the PCB backplane. **DO NOT SOLDER THEM AT THIS TIME.**

5. Slip the 511-Back steel panel over the Neutrik connectors and into its final position. Make sure that each and every Neutrik is fully seated into its respective mounting hole adjusting them as necessary.

6. While firmly pressing down on the entire assembly, install the 4/40 Hi-Lo threaded screws into the Neutrik connectors. I start at one end of the panel and work to the other end installing every screw. I recommend doing this by hand as you need to “feel” the screw being fully tightened. They will snug up nice but **DO NOT** over-tighten them. You can easily strip the hole especially if you use a powered screwdriver of some sort.

7. Double-check to make sure all of the Neutrik connectors are still firmly and evenly fitted tight against the PCB backplane. While squeezing the backplane towards the steel panel with your fingers, solder one pin on each of the #1 slot XLR’s. Repeat this single pin soldering process for slots #4, 7 and 11.

8. Visually inspect to make sure the PCB and steel panel are straight, even and parallel with each other along all edges.

9. Solder all the remaining pins on the Neutrik XLR connectors.

10. Insert the 3 and 4 pin Molex female receptacles onto the right angle header.

Final assembly of the rack

1. Identify the front edges of the 511-Top-Bottom steel panels. The front edge will have 11 tapped holes (for the modules) and the back edge will have only 7 tapped holes.

2. With the panel standing on its back edge on your work surface, join a 511-Side panel to the 511-Top-Bottom panel using the 4/40 x 1/4" screws. **DO NOT** fully tighten the screws at this time. Leave them ever so slightly loose so there is still a *little* adjustment between the parts. The front edge of the 511-Top-Bottom must be aligned with the front bent ear part of the 511-Side panel.

3. Join the 2nd 511-Side to the other end of the 511-Top-Bottom panel, also leaving the screws ever so slightly loose.

4. Join the 2nd 511-Top-Bottom panel to the rest of the assembly. Make sure the edge with the 11 tapped holes is towards the bent ears of the 511-Side panels. Continue to leave the screws ever so slightly loose.

5. Lay the assembly down on your bench so the bent ears (front of the rack) are against your work surface. Insert the PCB backplane assembly into the steel rack assembly. Install the 4/40 x 5/16" pan-head screws along the perimeter of the 511-Back panel. Insert and start each and every screw before you fully tighten any of them.

6. Once all of the 511-Back perimeter screws are fully tightened, you can now fully tighten all 16 of the 4/40 x 1/4" screws that secure the 511-Top-Bottom panels to the 511-Sides. Do not use gorilla brute force to tighten any of these screws as the will shear off.

7. Install the black powder coated 511-Ears to the 511-Sides using the 4/40 x 1/8" screws. Make sure the countersunk portion of the 511-Ears is facing outward. **DO NOT** over-tighten these screws as they will easily strip out. They just need to be snug. They 511-Ears are as much a "decoration" as anything.

Pre-Flight Measurements

1. Proper voltage measurements should be confirmed before trying any modules in your rack.

2. Connect a suitable PSU to the power connector of the rack. Turn on this PSU.

3. With your DMM set to read DC voltage, hold the black probe against the #5 pin of one of the card edge connectors. Count down 5 contacts from the top edge of one of the connectors. This is 0V audio ground. You just need to gently hold the probe against the contacts. **DO NOT** try to insert the probe in between the contacts.

4. Hold the red probe against the lowest or #18 pin of one of the card edge connectors. Your DMM should read approximately -24V.

5. Hold the red probe against the #17 pin of one of the card edge connectors. Your DMM should read approximately +24V.

6. Hold the red probe against the #15 pin of one of the card edge connectors. Your DMM should read approximately +48V.

7. Hold the red probe against the #14 pin of one of the card edge connectors. Your DMM should read approximately -16V.

8. Hold the red probe against the #12 pin of one of the card edge connectors. Your DMM should read approximately +16V.

If your DC measurements are not inline with the above directions, double check your PSU and/or the wiring of the DC cable that goes to the rack.

Once the DC measurements have been properly verified, you should be good to go!! Now fill this bad boy up and start recording!!