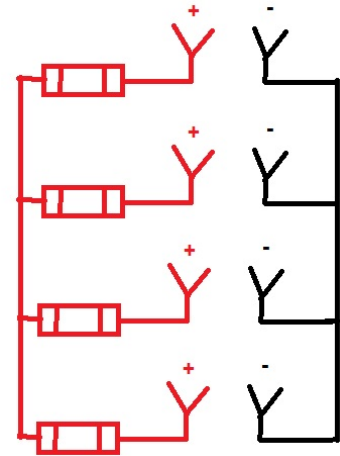


PowerPole Distribution Box Instructions

Theory of Operation

The basic schematic is shown to the side.

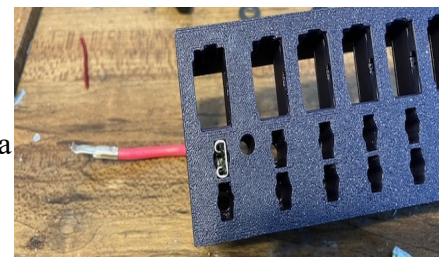
- Multiple power pole connectors are arranged so that all of the black (negative) connectors are tied together to a negative bus.
- Each red (positive) connector goes through a fuse and then reaches a second common (positive) bus.
- Typically, one connector (often set apart as the top one) is used to receive power from a power supply (battery or AC-based); its fuse acts like a current limiter for the sum of all of the output connectors.
- Each individual remaining connector can supply power to a different device, with a smaller fuse appropriate for the current needs of individual devices.



Construction

Build the connection between FUSE and RED POWERPOLE

- ❑ Cut a 2.5 inch long piece of red-insulated #16 AWG stranded wire. Strip approximately 1/4" of insulation from each side (sharp insulation strippers work well for this). Using powerpole specific crimper, crimp a metal powerpole contact to one end. DO NOT insert into the plastic power pole shell yet. Test the snugness of the crimp -- but be careful not to pull it out!
- ❑ Take a female crimp spade connector. The blue insulator wrap won't fit through the crimp terminal in the 3D-printed distribution box, and must be removed. Use small needle nose to grab the blue insulator and tug it off.
- ❑ Crimp the remaining bare end of the 2.5" wire into the female crimp spade connector, verifying that the crimp is secure. Often you can double the 16AWG wire over and still fit it in. The "red" crimp position may crimp it, or the "non-insulated" position of some crimpers; also the 0.100 crimp of a RG8 coax crimper does well. If your crimp isn't secure, use a soldering iron and a TINY amount of solder to secure the wire to the lug. Don't leave a blob!
- ❑ From the front of the 3D printed distribution box, pass the powerpole contact **through** the medial hole for the spade connect, and seat the female spade connector in the slot, leaving the power pole contact and wire protruding out the back.
- ❑ Insert the powerpole connector into the red plastic powerpole shell, remembering that it slides over the metal spring inside the shell. Be certain to hear it "click" into place; a small flat screwdriver blade may help push it into position.



Build the Negative (Black) PowerPole Connector

- ❑ Take a 1" piece of black- or green-insulated #16 AWG stranded wire and remove approximately 1/4" of insulation from both ends.

- ❑ Crimp one bare end into a powerpole contact, verifying that the crimp is secure.
- ❑ Insert the powerpole contact into a black powerpole shell, remembering that the contact slides over the metal spring already in the shell.. Be certain to hear the "click" of proper positioning.

Join the RED and BLACK PowerPole Shells

- ❑ Join the black and red assembled powerpole shells remembering the proper positioning so that the RED contact is to the RIGHT and UP when viewed from the front. If you've never done this, you may want to ask for help to be sure you understand "red, right, up!"
- ❑ From the back of the 3D printed box, inserted the red/black joined powerpole connect through so that the contacts protrude out the front, with the RED side closest to the middle, closest to the spade terminal just inserted. The black terminal should be toward the side (lateral) of the distribuion box. Later, a rod will be used to secure the positioning of the power pole shell more securely.

The free end of the black or green wire from the negative powerpole connector will **later be soldered to a negative bus wire (#14 AWG solid) running down one inside side of the box.**



Build the Positive Bus side of the Fuse

- ❑ As you did above, remove the blue insulator from the end of a female crimp connector, to finish making the holder for an ATO-type blade fuse.
- ❑ Cut approximately 1" of red-insulated #16 AWG stranded wire, and remove approximately 1/4" of insulation from each end.
- ❑ Crimp one bare stranded end of the wire into the female spade connector, verifying that the crimp is secure; if not, add a tiny bit of solder to secure it.
- ❑ Insert the free end of the wire from the front of the 3D-printed distribution box, through the laterally placed crimp terminal slot, and seat the female crimp connector in the slot, to later accept an ATO blade type fuse.



The remaining bare end of the red wire **will be later soldered to a #14 solid positive bus, running down the lateral inside of the distribution box.**

Repeat the above instructions for each successive horizontal row of fuse and powerpole connector.

