

Add an Anderson Powerpole™ Connector to your Power Supply

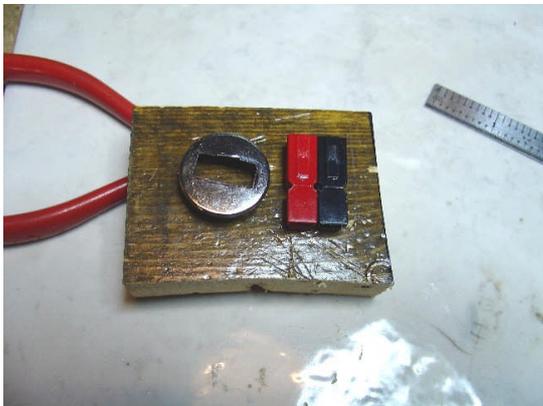
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Introduction

Many desk-top DC power supplies have front facing cigarette lighter sockets (now called automotive accessory sockets) as one of their DC connectors. These sockets are generally limited in current handling capability, as the typical accessory plug is unable to carry more than about 5-10 amps. Now I don't know about you, but I've converted all of my DC interfaces to the rapidly-becoming standard Anderson Powerpole connector. If I need a cigarette/accessory socket, I'll build a Powerpole-to-Accessory socket or plug adapter cable. So I don't need an accessory socket on the front of my power supplies. What I do need is an Anderson Powerpole connector.

PowerPole Plug

The accessory socket opening is about 0.8" in diameter. It turns out that a standard 3/4" diameter metal hole-plug, available from your local ACE Hardware store, will fit nicely into this opening if the hole-plug's metal fingers are bent out slightly. To cut the hole for the Powerpole connector in the plug, first drill a 1/4" diameter hole in the center of the plug. Using a needle file, square up the hole, and then nibble it out to a 0.3" x 0.6" rectangular hole using a nibbling tool. To make the plug look better, I painted it black to match the front panel of my MFJ-4225 power supply. Once the hole is cut and the plug painted (if desired), slide the Powerpole connector into the rectangular slot and epoxy it in place using 2-part quick setting epoxy.



Unpainted 3/4" plug



Painted plug

Power Supply Modifications

The particular power supply that I modified was the MFJ-4225, so the modifications are specifically oriented towards this power supply. However, this modification is applicable to any power supply with an automotive accessory socket.

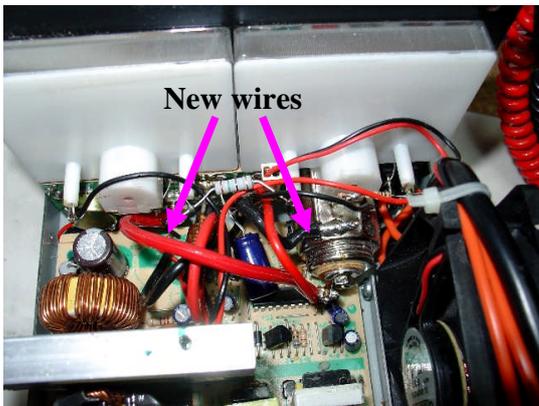
First, remove the cover from your power supply. For the MFJ-4225, there are two screws on each side, two screws on the top front panel, and two screws on the rear panel that must be removed. Inside the MFJ-4225, there is a metal plate that holds the meters in place. This metal plate must be removed by removing the screw attaching it to the

heatsink. Note that there is Loc-Tight™ applied where the plate and heatsink come together, so some jiggling is necessary to break the aluminum plate free.



Meter plate in place – must be removed

Once I had access to the inside of the power supply, I saw that the accessory socket was attached to the front panel high current connectors with small gauge wire. Therefore, I simply soldered new 12-gauge wires from the front panel connector terminals to the accessory socket, leaving the original smaller gauge wires in place. The ground wire is soldered directly to the accessory socket case using a large soldering iron.



Added 12-gauge wires

Now from the front of the power supply, you need to solder wires to the inside of the accessory socket. Since there isn't much room inside the socket, standard insulated wires are too inflexible. Therefore you'll need to use insulated braid. You'll need two 2-inch lengths of shield from RG-58 coax. Crimp (and solder if desired) the powerpole terminals on one end of each piece of braid. Next slide a piece of heat-shrink tubing over each braid, leaving about 1/4" of the braid exposed. Tin the exposed braid ends.

The next step is a little difficult, but not too bad. You need to tin both the center conductor tab, and the inside case of the accessory socket. Leave a nice glob of solder in both places. Now solder each of the braid assemblies to the tinned locations. Once this is accomplished, slide the Powerpole terminals into the Powerpole housing, and then

push the plug assembly in place to ensure that everything fits properly. Once the fit is verified, pull the plug assembly back out and apply epoxy around the inside of the accessory socket. Carefully slide the plug assembly back in place and let the epoxy cure.



Braid assemblies soldered in place



Powerpole plug assembly epoxied in place

Conclusion

I've described a way to effectively replace the front automotive accessory socket found on many power supplies with a Powerpole connector. In my opinion, this replaces a useless connector with a versatile, standard connector on the power supply. Spend a little time doing this and make your power supply more flexible and useful.