

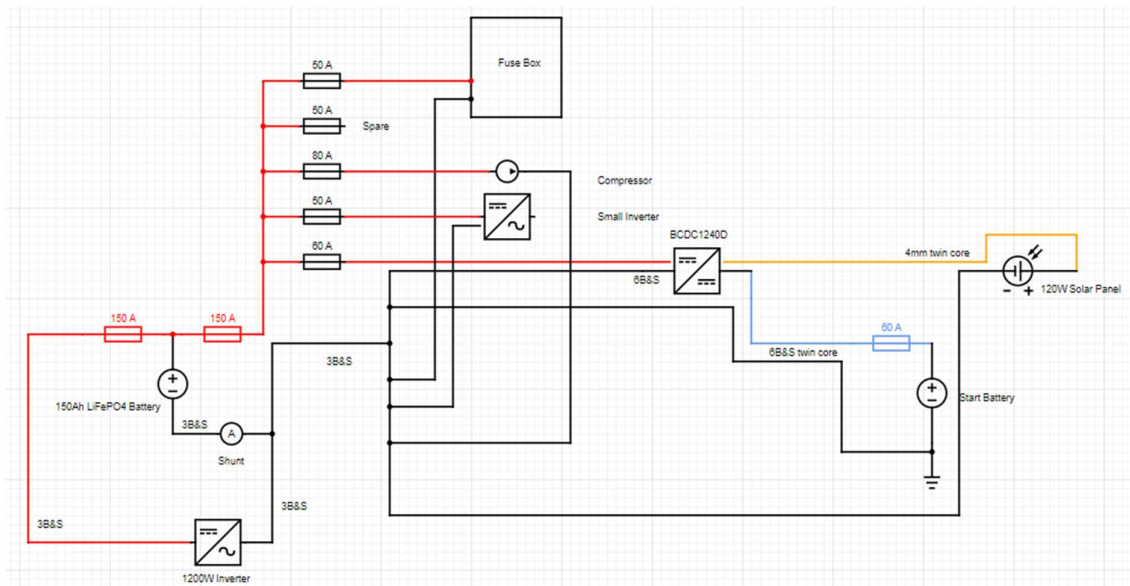
Power Distribution

This is usually the most overlooked and most underrated part of every auto electrical power system installation. But it is one of the most important. You can buy the best parts available on the market if you don't connect them the right way they will perform very poorly.

When we are talking about power distribution, we are talking about the way how the power gets from the battery to the loads and from the chargers to the battery in a safe and efficient manner. All the rules that we have learned earlier on come into play here. We have to choose the right size cable and fuses according to the loads and the chargers that we are running.

A poorly executed power distribution will easily show in an automotive installation by a whole bunch of inline fuses around the battery positive terminal of the battery. It does not have to be that way. If the system is well planned, you will only put a few fuses directly on the battery or ideally just one cable going to one main fuse holder so that the battery is not overloaded and easy to access and change. This will be a fuse for a large inverter and for further distribution to smaller loads. This is usually done with ANL or Mega fuses.

! A very important rule is that a fuse can not be further away than 300mm from the power source !

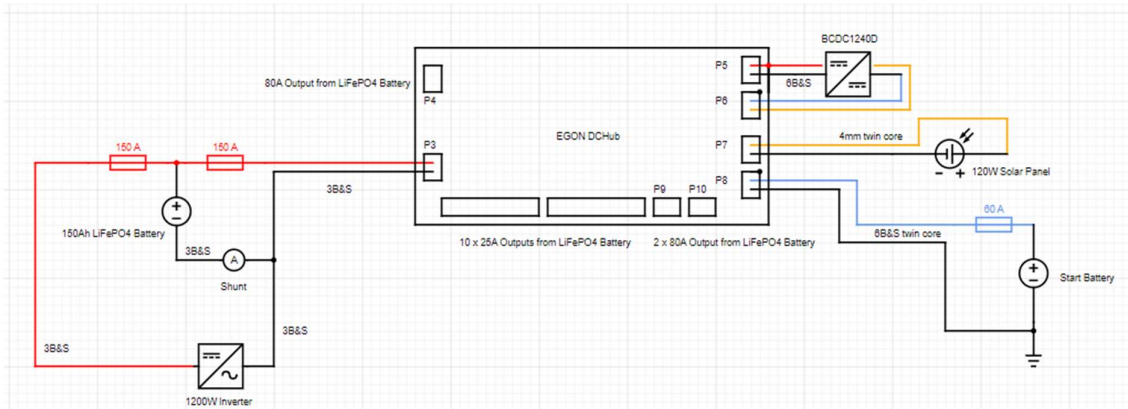


From the main system fuse the power should be distributed to the smaller fuses like pre fuses for a fuse box, charger fuses, small inverter fuses or compressor fuses. This is usually done with Maxi or Midi fuses.

From here on you will usually only find a fuse box with standard blade fuses to connect smaller loads like your fridge, lights, DC power sockets, USB chargers etc. The fuse box should be located in an easy to access location and close to the majority of the connected loads. That way you can use a large diameter cable for the majority of the cable and then only have a short run from the fuse box to the load. This will significantly reduce voltage drop to the load.

! Good power distribution is all about safety and reducing voltage drop !

Another way to tackle power distribution is to use a product which has already got all the power distribution on board. Here is an example with the EGON DCHub:



Here you just need the primary fuses directly from the battery, the ANL or Mega fuses for the DCHub and a large inverter. From here you can use all the fuses that integrated on the DCHub. The unit acts as a power distribution system and a fuse box in one. It also eliminates voltage drop issues almost completely uses a lot less room and enables untrained people build a high quality auto electric power system.