

Wiring

Can use basic wiring, nothing too fancy

- Solder or physically tie the wires together
- Not much else honestly lol
- Stranded VS solid wires, stranded is more bendy and flexible, solid better for more electricity flow

Choices of wire

THHN

- covered with a PVC jacket and nylon coating
- provides waterproofing and slight lubrication for placing in a conduit
- **not recommended for outside use**

ROMEX

- made out of two or three THHN wires combined with a grounding bare copper wire
- minimal PVC jacket protection
- primary use for this type of wire is to run more than one conductor at a time through a separate grounding wire
 - MC Cable: metal-clad cable (sheathed in metal, at least two conducting wires and ground)










UFB

- can be used in conduit, outdoors, underground
- most expensive

I have no idea how many amps the circuit will draw, but I think 12-14 gauge wire will suffice, and we can use Romex/MC cables for the sake of cable management. Fairly certain that running everything thru one chungus cable is fine and then just splitting up the ends, however bundling up cables does introduce increased thermal noise and stuff so honestly idk which one will provide a bigger advantage lol. Honestly wiring and cables are pretty self-explanatory, not sure what else to put. Normal wires can withstand up to 90c, 194f, all the high temperature wires are like hundreds to thousands of dollars.

Link	Price	Notes
https://www.lowes.com/pd/Southwire-50-ft-14-AWG-Solid-Black-Copper-THHN-Wire-By-the-Roll/1000774438	\$20.37/50ft	14 gauge, THHN, can use in wet/dry conditions -(for connecting battery and other 24v stuff)

https://www.amazon.com/Electrical-Silicone-Extension-Flexible-Lighting/dp/B09247KZXF?source=ps-sl-shoppingads-lpcontext&ref_=fplfs&pssc=1&smid=A1L0W6N2S8R25P	\$35/164ft	22 gauge (for ~6.3A), operating temps up to 80c Use for connecting all the components stuff to adcs and MCU
https://www.homedepot.com/p/Cerrowire-25-ft-14-Gauge-Red-Solid-THHN-Wire-112-1403A/303289112?source=shoppingads&locale=en-US	\$9.70/25ft	THHN, 14 gauge, RED ,

Wire Gauges Size & Wire Ampacity Table		
 <p>3/0 Gauge</p>	<p>200 AMPS</p> <p>Service Entrance - From Utility Pole to Energy Meter</p>	WWW.ELECTRICALTECHNOLOGY.ORG
 <p>1/0 Gauge</p>	<p>150 AMPS</p> <p>Service Entrance & Feeder Wire - To Panel Box</p>	
 <p>3 Gauge</p>	<p>100 AMPS</p> <p>Service Entrance & Feeder Wire - To Panel Box</p>	
 <p>6 Gauge</p>	<p>55 AMPS</p> <p>Feeder & Large Appliance Wire</p>	
 <p>8 Gauge</p>	<p>40 AMPS</p> <p>Feeder & Large Appliance Wire</p>	
 <p>10 Gauge</p>	<p>30 AMPS</p> <p>Appliances e.g. Dryer, Air-conditioning, Water Heater</p>	
 <p>12 Gauge</p>	<p>20 AMPS</p> <p>Appliances like Laundry, Bathroom & Kitchen Circuits</p>	
 <p>14 Gauge</p>	<p>15 AMPS</p> <p>General Lighting, Fans & Outlet / Receptacle Circuits</p>	

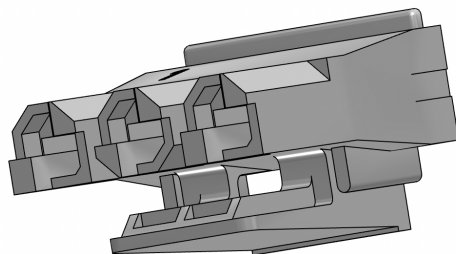
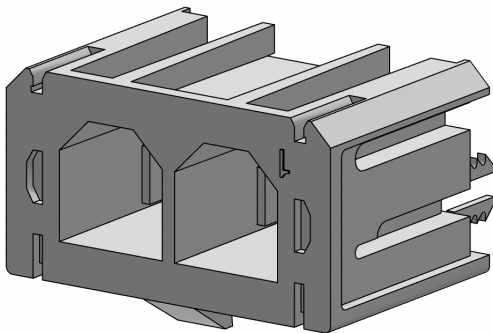
Connectors

We aren't working with anything too high current (I hope) so any sort of connectors work. Would rather avoid using literal outlet plugs because yes. Thinking of using a similar type of connector that a lipo battery uses to connect to stuff.

https://www.molex.com/molex/products/part-detail/pcb_headers/1720420202	<table><tr><th>1</th><th>10</th><th>75</th><th>525</th><th>1050</th></tr><tr><td>\$2.24</td><td>\$1.73</td><td>\$1.53</td><td>\$1.48</td><td>\$1.3</td></tr></table>	1	10	75	525	1050	\$2.24	\$1.73	\$1.53	\$1.48	\$1.3
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https://www.molex.com/molex/products/part-detail/crimp_housings/1726722003	<table><tr><th>1</th><th>10</th><th>100</th><th>500</th><th>1000</th></tr><tr><td>\$0.86</td><td>\$0.709</td><td>\$0.591</td><td>\$0.532</td><td>\$0.473</td></tr></table>	1	10	100	500	1000	\$0.86	\$0.709	\$0.591	\$0.532	\$0.473
1	10	100	500	1000							
\$0.86	\$0.709	\$0.591	\$0.532	\$0.473							

These two ^ go together, solder the wire onto one end, then connect the two together. Don't know what else to add really, they are keyed so we can't plug them in the wrong way if we forget.

Not really much to consider when it comes to connections, main things you need to look out for are how many poles the connection should have (we are using two, one positive, one ground), material, voltage and current capability (the two I chose both pass our voltage and current draws) and finally housing material so it doesn't melt (this passes that test as well unless it somehow goes above like 125c)



Feel free to add suggestions and dm me OatMeAlready#8101