Battery Pack Supplemental Info

Battery Pack

The battery pack is a 3-cell lithium ion pack with a nominal voltage of 11.1v. DO NOT ALLOW THE PACK TO FALL BELOW 9.0 VOLTS or permanent damage will occur to the cells. For storage, the cells should be placed in the pack, in indivdual containers or taped. If shorted, the cells can discharge extreme current and cause a fire.

For charging, the The cells can be removed from the pack and placed in the 18650 cell charger. On the robot, the voltage can be measured by accessing the barrel plug port voltage. Although it is a liPo battery the liPo connector on the BeagleBone is not used.

Cells should be removed from the pack USING A TOOL that will compress the steel contact and is NOT SHARP. If you try to remove the cell without a tool, the plastic wrap will be damaged. An AC plug works well for this, as shown in Figure 1.

FIGURE 1. USE A NON-SHARP TOOL TO REMOVE THE BATTERY

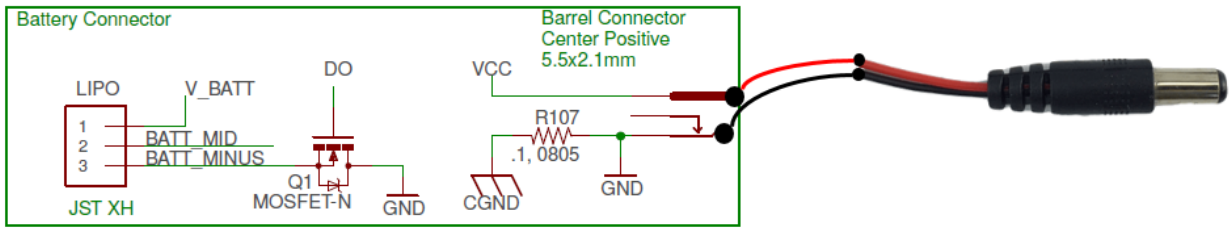

FIGURE 2. BATTERY CONNECTION TO BEAGLEBONE

The bottom of the case requires wires soldered to put the battery cells in series, with two spade connectors ready to plug into the power switch. See Figure 3 for the bottom of the case.

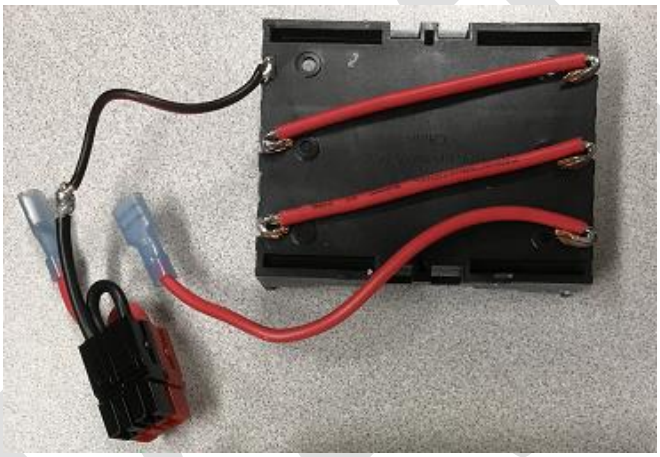

FIGURE 3. WIRING THE BOTTOM OF BATTERY CASE

During assembly, make sure that the negative (black) connector mates with the bump in the housing.

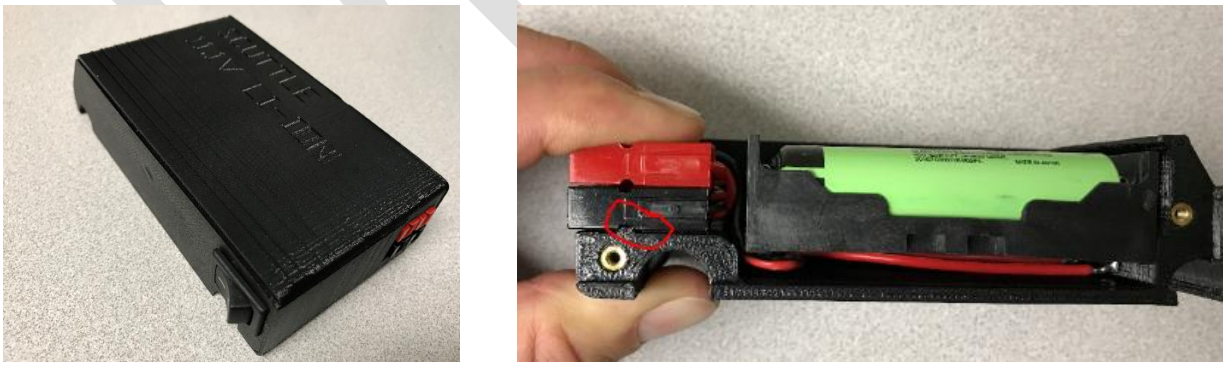

FIGURE 4. BATTERY PACK CONNECTORS

FIGURE 5. BATTERY PACK WITH COVER REMOVED

Tips for assembly of the Li-ion power supply:

- Use 18 gauge wire for connections
- Crimp the spade connectors onto the wire and follow your crimp with a pull-test to make sure it cannot come loose. The best style crimper for this type of connector is shown in Figure 6.

FIGURE 6. RECOMMENDED CRIMPER STYLE: GARDNER BENDER GS-388

Figure 7 Shows the type of connector we use for the Scuttle robot power supply. It is reliable when using the proper crimper and works well with our 18awg wire.

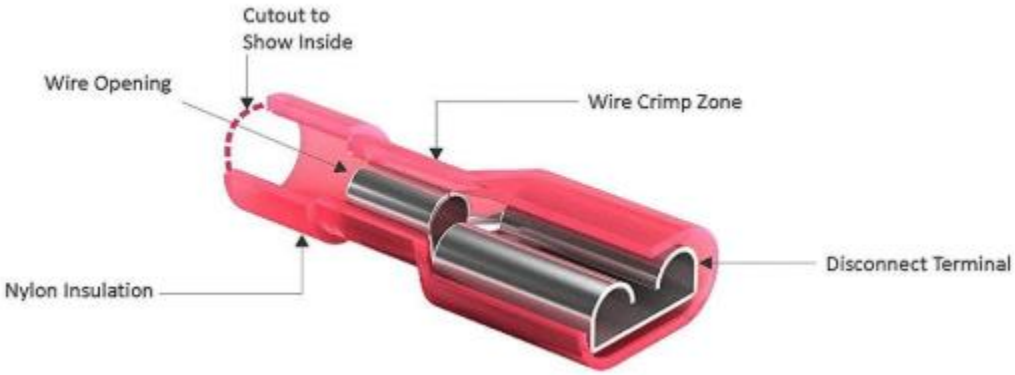

FIGURE 7. FEMALE QUICK DISCONNECT SPADE TERMINAL, 22-16 AWG

FIGURE 8. CUTAWAY IMAGE OF ANDERSTON POWERPOLE CONNECTOR