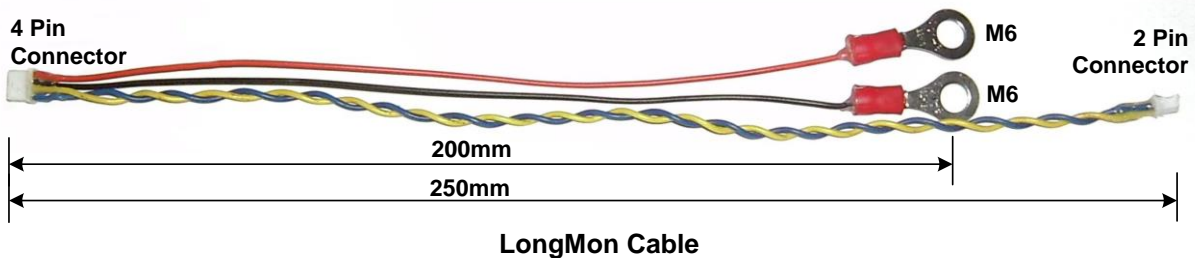
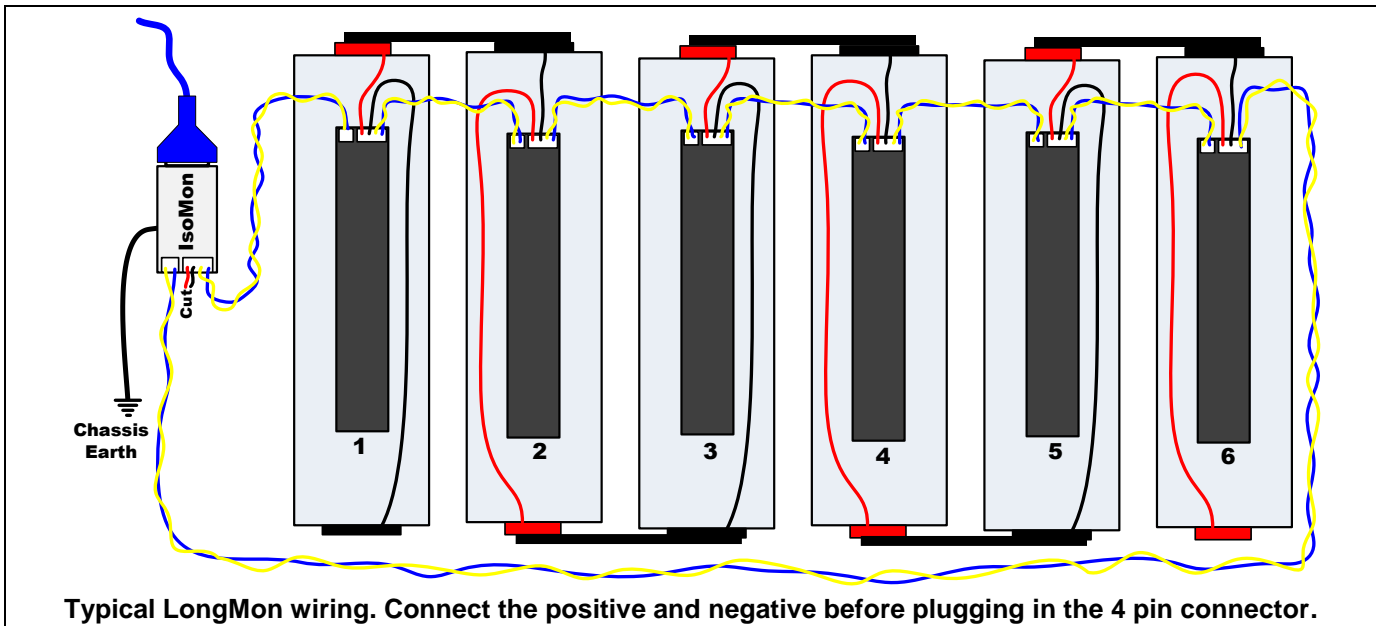


Connecting LongMons - Battery Pack Chain



Connecting the Battery Chain

1. Perform each operation with the small cable connectors un-plugged from the PCB. Only connect the plugs to the PCB once both power terminals are secured to the cells. This reduces the chance of high voltage damage across the input terminals of the LongMons.
2. Start with the most negative battery (cell #1) and work up the chain to the most positive.
3. Secure LongMons to the cells. Try to locate them to obtain best cell thermal coupling to PCB (cell) temperature sensor. The temperature sensor is on the connector end of LongMons (see photo next page). Do not allow the bottom of the PCB to come in contact with any metal (this area is live relative to cell voltages). Secure with double sided tape and/or cable ties.
4. Connect the cable red ring terminal to the battery positive.
5. Connect the black ring terminal to the battery negative.
6. Lastly connect the small 4 pin connector. At this point the LongMon LEDs will flash. The green LED will stay ON until it has received the first valid data (from PacMon or PC).
7. Connect the next LongMon. Connect the 4 pin output from the previous device to the 2 pin input of the present device to form a continuous "daisy" chain.
8. As each device is mounted ensure that the green LongMon LED is ON (device is powered).
9. It may be necessary to extend the blue and yellow twisted cables. Do this by splicing in additional lengths of twisted cables. These cables are live relative to the previous cell. Do not allow them to come into contact with other batteries or metal (better to unplug first).
10. It is not essential that the cell battery chain progresses in the same order as the cell connection order. The two pin input at the LongMons is opto-isolated and can daisy chain to any other cell in the pack.

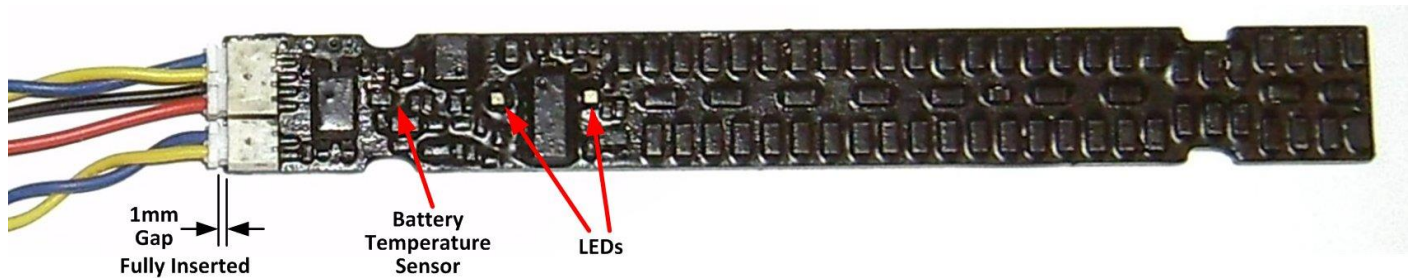
When installing, remember to insert the 4 pin connectors last. In the same way, always unplug the 4 pin connector first before disconnecting the battery terminals to prevent possible high voltage events damaging the LongMons. The power connections (red and black wires) for each LongMon must be applied across one cell only. LongMons are $\pm 20V$ tolerant, however take care when wiring.

Connect the IsoMon to the Battery Chain.

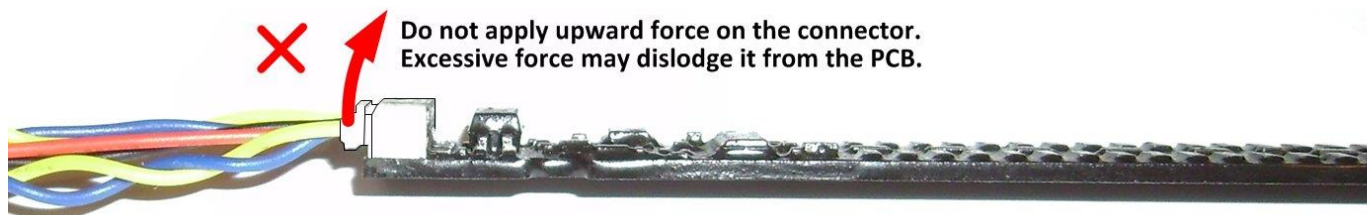
1. Use the same blue and yellow twisted pair cables to terminate the LongMon daisy chains into IsoMon (from the first and last battery connections).
2. The spare red and black cable at the IsoMon is not used and can be cut off or insulated.
3. Secure the IsoMon earth cable to chassis (provides a fault current path to earth).

The software “Network Tester” can be used to locate breaks in the chain (see tools menu). Re-number the cell chain (addresses) through the software commissioning wizard once the full battery chain has been completed.

When the connectors are fully inserted there is normally a 1mm gap (as shown below)



Be careful not to apply excessive vertical forces when inserting or removing the connector (possibly dislodging from the PCB).



When mounting the LongMons, do not allow metal to come in contact with the top or bottom of the PCB surface. The black thermally conductive epoxy coating adds robustness but does not provide sufficient insulation to prevent short circuit. A short to either of these surfaces will damage the LongMon electronics.