

TP-210V quick start guide

The '210 is a 2 to 10 cell balancer that incorporates a discharge or “bleeding” method to accomplish the task of cell balancing. It is capable of sinking a maximum of 450mA of current.

The balancer can also be used as a charge controller when coupled to either a TP-1010 or 535 charger (only up to 5 cell with the 535). In this mode of operation it both balances as well as acts as a watchdog over the whole charging process for the ultimate in Lipo battery charging safety. Note that for this mode to be utilized the data cable connecting the balancer to the charger **MUST** be used. Also note that even though this charge method is extremely safe, it by no means removes the need to keep watch over a charging battery, or the need to charge in a safe place or within a containment vessel.

Thunder Power batteries come with two different sizes of balancing connectors, smaller 4 pin and larger 6 pin types. The four pin connector is used for two and three cell batteries and the six pin is used for four and five cell packs. Note that the '210 contains two banks of balancing ports, one one set of ports has one of each of these connectors and the other has two of the larger six pin connectors.

Within each bank there are two connectors, a Group A and a Group B, Group A must always be used, with or without group B.

Special notes:

- Banks 1 and 2 are only to be used separately, **NEVER** together.
- When closed loop mode charging 3, 4 or 5 cell packs in series (to make 6, 8 or 10 cell packs), it is imperative that the group A battery be plugged into the group A balancing tap **AND** the negative terminal of the battery charger...see pages 3 and 4 of the regular instructions for more detail on this procedure.
- To use the balancer as a stand alone unit (auto self balancing) all one needs to do is simply plug in a battery' balancing connector to the appropriate connector on the balancer and allow the balancer to do it' job, typically taking less than an hour.

What the LED's mean:

There are eleven LED's on the unit, one yellow “status” and ten red “bleeding” LED's. They are used as follows to indicate various conditions of a battery. Note tht at any time, the start button can be pressed to reset the device.

Normal

The battery is plugged in and the status LED along with as many bleeding LED's as there are cells in the pack light up for 5 seconds and then go out. This may be followed by some of the bleeding LED's lighting up periodically, indicating that one cell or more is lower than the others. If the status LED flashes, the battery average cell voltage has dropped below 3.6V/cell indicating a near over discharge situation.

Imbalance of 0.03 to 0.2V

Yellow status LED off and as many bleeding LED's as there are cells in the pack flash for 5 seconds. Some of the bleeding LED's will stay on indicating which cells are being pulled down to match lower voltage cells. It is advised to allow the balancer to do it's job by itself until all the red LED's extinguish. However, it is possible to use the unit with a charger providing the charger is set for a low charge rate (0.3Amp) and preferably in charge control mode with a 1010 or 535 unit. If the status LED flashes, the battery average cell voltage has dropped below 3.6 volts and it may be necessary to put a partial charge in the battery and then allow the charger to finish it's job.

Imbalance of greater than 0.2V

Yellow status LED off and as many bleeding LED's as there are cells in the pack flash for 60 seconds. Leave the battery plugged into the balancer until all the red LED's extinguish. DO NOT try to recharge the battery until all of the red LED's are extinguished. If the status LED flashes, the battery average cell voltage has dropped below 3.6 volts, indicating a near over discharge situation. If the battery will not balance, it should be sent back to it's manufacturer. If the battery is a Thunder Power product, use the RMA form on www.ThunderPowerRC.com to return it to the factory.

What the audio beeping means:

The '210 will emit a two tone beep, flash the status and as many bleeding LED's as there are cells in the pack when a battery is first plugged in or the start button is pressed.

If used while charging, the '210 will triple tone beep (and turn on the yellow status LED) when a battery reaches full charge voltage.

The '210 will single beep in rapid succession (while flashing the status and bleeding LED's) to alert you if a cell is over 4.3V. This is particularly useful while charging as it can be a first alert if you happen to set your charger incorrectly. For example, if you leave your charger set up for NiCd's.

The '210 will use double beeps in rapid succession (while flashing as many bleeding LED's as there are cells in the pack) if any cell is under 3.2V. This will be repeated every minute or so until unplugged from the battery.