

## T6B Lithium Cell Balancer

Tahmazo T6B V.2 Lithium Cell Balancer is designed to handle both Lithium Polymer and A123 (or LiFePo<sub>4</sub>) battery packs.

With A123 (or LiFePo<sub>4</sub>) battery packs, the nominal cell voltage is 3.3v per cell. The voltage protection is adjusted according to the different battery types.

When connecting the battery pack to the T6B V.2 Lithium Cell Balancer, **press and hold** the MODE button for 5 seconds. The 'status' LED indication on the T6B V.2 lithium cell balancer for the different battery types is:

- GREEN for LiPo battery packs
- RED for A123 (or LiFePo<sub>4</sub>) battery packs

## T6B Specifications

Parameter	Mode	Specifications
Operating Voltage	Output Battery Voltage	6.0 ~ 30V
	Charger Input Voltage	55V max
Battery Type	Lithium Polymer Battery only	3.7V nominal cell voltage
	A123 Battery	3.3V nominal cell voltage
Balance Battery Cells	Lithium Polymer Battery	2 ~ 6 cells
Max Current		10A
Voltage Resolution	Connection/Disconnection Mode	±5 mV
Function (LiPo Battery)	Over Charge Protection Voltage	4.30 ± 0.010V/Cell
	Over Discharge Protection Voltage	3.00 ± 0.010 V/Cell
	Short Protection Voltage	2.00 ± 0.010 V/Cell
	Power Down Voltage	2.75 ± 0.010 V/Cell
Function (A123 Battery)	Over Charge Protection Voltage	3.90 ± 0.010V/Cell
	Over Discharge Protection Voltage	2.50 ± 0.010 V/Cell
	Short Protection Voltage	2.00 ± 0.010 V/Cell
	Power Down Voltage	2.35 ± 0.010 V/Cell
Size		84 x 4 x 16 mm
Weight inc wire		57.8g





**T6B**

**ACTIVE BALANCE**  
digital lithium cell balancer

I N S T R U C T I O N   M A N U A L

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## T6B Lithium Cell Balancer

Tahmazo T6B Lithium Cell Balancer is designed with detail and care when it comes to lithium cells management. T6B is easy to use, and balances your lithium packs to precisely  $\pm 0.005V$  between each cell.

Using the T6B will protect your battery and even your property, with its specially designed lithium protection circuitry. When you use the T6B to charge your lithium battery, it will automatically shut-down the charging process if the cell-count is not set properly.

From the moment you connect your lithium pack to the Tahmazo T6B, it will start to self-balance the pack. You can link 2 x T6B to balance up to 12-cells lithium pack. Tahmazo T6B takes cell balancing one step further, giving you precise cell voltage when it is interface with the Tahmazo T15 AC/DC Power Up charger.

## T6B Specifications

Parameter	Mode	Specifications
Operating Voltage	Output Battery Voltage	6.0 ~ 30V
	Charger Input Voltage	55V max
Battery Type	Lithium Polymer Battery only	3.7V nominal cell voltage
Balance Battery Cells	Lithium Polymer Battery	2 ~ 6 cells
Max Current		6A
Voltage Resolution	Connection/Disconnection Mode	$\pm 5$ mV
Function	Over Charge Protection Voltage	$4.30 \pm 0.010V/Cell$
	Over Discharge Protection Voltage	$3.00 \pm 0.010 V/Cell$
	Short Protection Voltage	$2.00 \pm 0.010 V/Cell$
	Power Down Voltage	$2.75 \pm 0.010 V/Cell$
Size		84 x 49 x 16 mm
Weight inc wire		57.8g

## T6B Read This Before You Start

### Status LED

The Status LED indicates:

Status LED	Function
ON (without flashing)	Balancer in Disconnection Mode
ONE (1) flash per second (x x x)	Initial Mode
ONE (1) per second (x x x)	Balancer in Connection Mode
TWO (2) flashes (xx xx xx)	Over-Voltage Error
THREE (3) flashes (xxx xxx xxx)	Short-Circuit Error
FOUR (4) flashes (xxxx xxxx xxxx)	Connection Error
OFF (no lighted LED)	Power Off

### Mode

#### Master-Slave mode

The balancer should be set to Master when it is operated singly. For slave mode, please refer to Other Balancer Configuration.

#### Initial Mode

The first 60 seconds when balancer is connected to the lithium battery pack. In this mode, the balancer detects the voltage of the lithium cells and checks if they are balanced or unbalanced.

#### Connection Mode

ONLY when the balancer's inputs are connected to a charger or discharger

#### Disconnection Mode

In this mode, the balancer's inputs are NOT connected to a charger or discharger. For example, the balancer is used to self-balance an already-charged lithium pack. Or the balancer is connected to the battery pack through the voltage detection points, while the charged battery pack is connected to the charger directly.



## T6B Start Using Tahmazo T6B Balancer

### A. Using T6B As A Standalone Balancer

Switch T6B to the 'Master' mode. Then connect the battery pack with the proper harness to the balancer. (The balancer will check the lithium cell status in a few seconds). The Status LED will be lighted ('ON') when the balancer starts to balance the cells.

#### Cells are balanced

The balancer will flash the cell count (5 times) and enters the Power Off mode, turning off all the LEDs.

#### Cells are not balanced

The LEDs will start flashing rapidly to indicate that the cells have a higher voltage than the pack. The balancer will start to discharge cells with the higher voltage until the pack is balanced within 0.005v.

While the battery pack is connected to the balancer (as a standalone balancer), you can still connect the battery pack to a charger. The balancer will continue to discharge any cell with higher voltage until the pack is balanced within 0.005v.

### B. Using T6B With A Charger

Connect the balancer to the charger by the 4mm gold input connectors.

Set the proper voltage and current on the charger according to the battery pack's specifications.

Switch T6B to the 'Master' mode. Then connect the battery pack with the proper harness to the balancer. (The balancer will check the lithium cell status for a few seconds). Then the Status LED will be lighted ('ON') when the balancer starts to balance the cells.

Press the MODE button once and the status LED will flash to indicate that the Connection Mode is now activated.

Start the charger.

Once the charging is completed, press the MODE button to enter the Disconnection Mode and disconnect the balanced lithium pack.



## T6B Using T6B With The Interface Cable

### A. Using T6B With Tahmazo T15 AC/DC

#### For Charging

When the Tahmazo T6B balancer is connected to the Tahmazo T15 AC/DC charger using the interface cable (included with T6B balancer), the charging sequence is the same except:

When the battery pack is fully charged, the balancer will automatically switch to the Disconnection Mode, and you can view the charging data including voltage of each cell on the LCD display on the T15 AC/DC charger.

#### For Discharging

When the Tahmazo T6B balancer is connected to the Tahmazo T15 AC/DC charger/discharger using the interface cable (included with T6B balancer), the discharging sequence is the same except:

When the battery pack is fully discharged, the balancer will automatically switch to the Disconnection Mode, and you can view the discharging data including voltage of each cell on the LCD display on the T15 AC/DC charger/discharger.

### B. Using T6B With A Discharger

Connect the balancer to the charger by the 4mm gold input connectors.

Set the proper voltage and current on the discharger according to the battery pack.

Switch T6B to the 'Master' mode. Then connect the battery pack with the proper harness to the balancer. (The balancer will check the lithium cell status for a few seconds). Then the Status LED will be lighted ('ON') when the balancer starts to balance the cells.

Press the MODE button once and the status LED will flash to indicate that the Connection Mode is now activated.

Start the discharger.

Once the discharging is completed, press the MODE button to enter the Disconnection Mode and disconnect the discharged lithium pack.



## T6B Error Messages

Error will be indicated by the STATUS LED. The error indication will show for 10 seconds and then the balancer powers off. Press the MODE button while an error is being indicated to clear the error and connector's status.

## T6B Other Balancer Configurations

There are two ways of using two Tahmazo T6B balancers simultaneously for balancing up to 12 cells lithium cell-pack.

### Configuration 1 (See Figure 1)

Switch one T6B to the 'Master' mode, and the other balancer to 'Slave' mode.

Connect the (+) positive (red) input cable of Master Balancer to the (-) negative (black) input cable of Slave Balancer as shown in Figure 1 below.

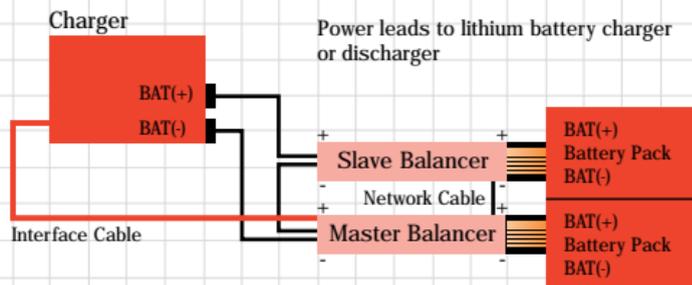
Connect the (-) negative (black) input cable of Master balancer and (+) positive (red) input cable of Slave balancer to a charger as shown in Figure 1 below.

Connect the network cable between two balancers.

Connect the lithium battery pack to Master Balancer and Slave Balancer in order within 12 seconds. (If the lithium battery pack is not connected to Slave Balancer within 12 seconds, ONLY the Master Balancer will work singly.)

The charging and discharging of the lithium battery packs connected will be according to the instruction of the charger/discharger.

Figure 1



## T6B Other Balancer Configurations

Configuration 2 (See Figure 2)

Set 'Master' mode for one balancer, and the other balancer to 'Slave' mode.

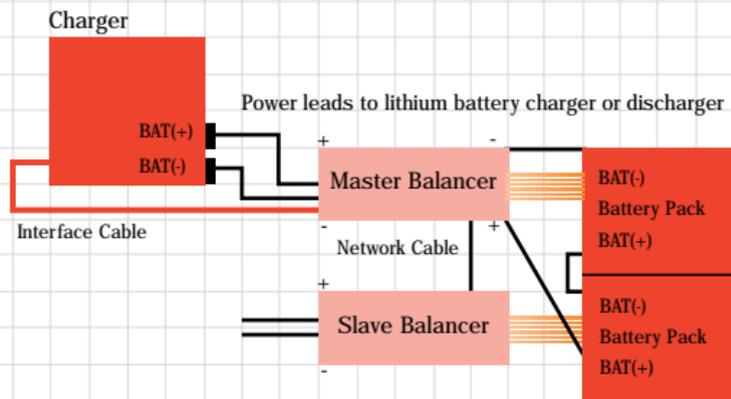
Connect the network cable between two balancers.

Connect the Master Balancer to a charger.

Connect the lithium battery pack to Master Balancer and Slave Balancer in order within 12 seconds. (If the lithium battery pack is not connected to Slave Balancer within 12 seconds, the ONLY Master balancer will work singly.)

The charging and discharging of the lithium battery packs connected will be according to the instruction of the charger/discharger.

Figure 2

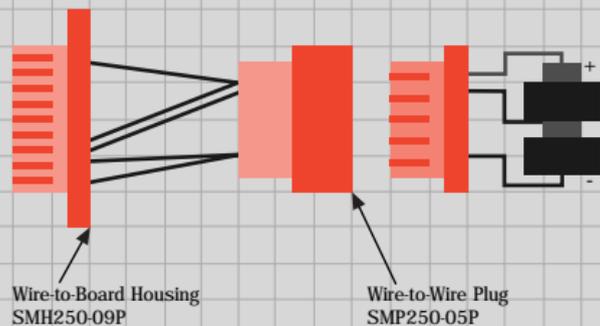


## T6B Battery Connection System

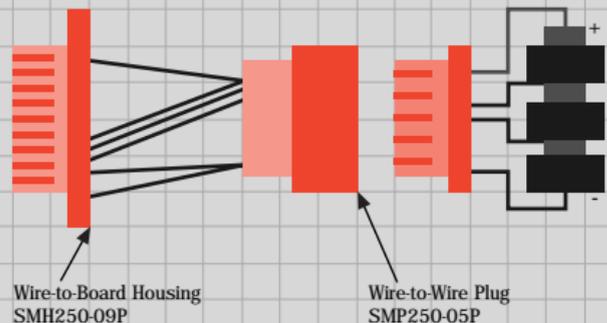
Battery Detection/Balance Harnesses

(These four types below: 2S-6S are included with T6B)

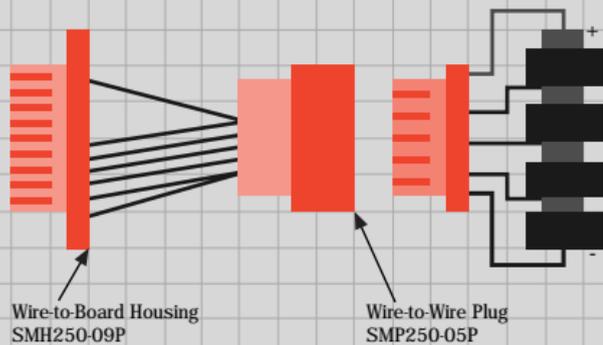
2 CELL



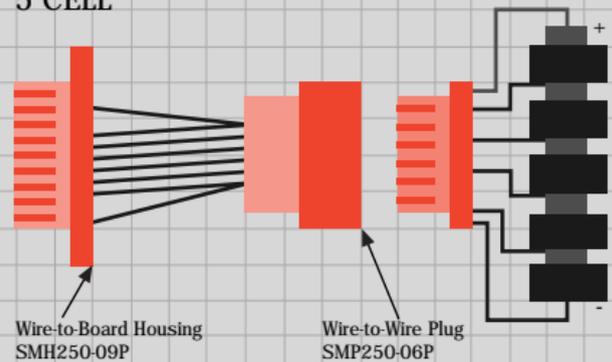
3 CELL

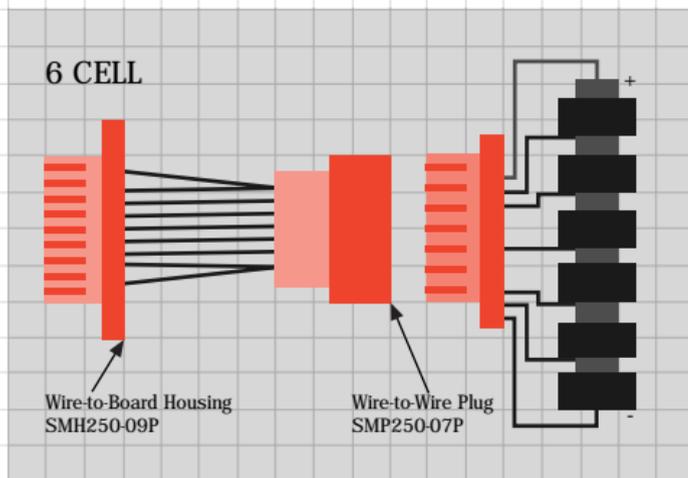


## 4 CELL



## 5 CELL





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