



# T6B Max

Active Balance - Cool Blue Balancer

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## Tahmazo T6B Max Active Balance Lithium Cell Balancer



### **Introduction**

Tahmazo T6B Max Lithium Cell Balancer is designed with detail and care when it comes to lithium cells management. T6B Max is easy to use and balances your lithium packs, bringing the individual cells in the pack to the same voltage.

Balancing lithium cells is necessary because the individual cell tends to decline to different states of charge or voltage levels when they are discharged during its application. The Tahmazo T6B Max will ensure, during the charging process, that the individual cells are optimally charged to the same voltage.

T6B Max Balancer will protect your battery, and even your property, with its specially designed lithium protection circuitry. The T6B Max will automatically shut-down the charging process if the cell-count is not set properly or when the pack is already 'balanced'.

When a lithium pack is connected to the Tahmazo T6B Max, the T6B Max will start to balance or equalize the lithium cells in the pack. The Tahmazo T6B Max takes cell balancing one step further, giving precise cell voltage when it is interfaced with selected Tahmazo chargers\*.

You can link 2 x T6B Max Balancers to balance up to 12-cell lithium pack.

*\* Selected Tahmazo chargers includes Tahmazo T15 AC/DC Power Up and Tahmazo T30V2 Active Power charger*

**Specifications**

Parameter	Mode	Specifications	
Operating Voltage	Output Battery Voltage	6.0 - 30V	
	Charger Input Voltage	55V max	
Battery Type	Lithium Polymer Battery	3.7V nominal/cell	
	LiFe or A123 battery	3.0V nominal/cell	
No. of Cells	Lithium battery pack	1 - 6 cells	
Max Current	Lithium battery pack	10A	
Voltage Resolution	Connection / Disconnection Mode	$\pm 5$ mV	
		LiPo or Li-Ion	LiFe or A123
Function	Over Charge Protection Voltage	4.30 $\pm$ 0.010 V/Cell	3.90 $\pm$ 0.010 V/Cell
	Over Discharge Protection Voltage	3.00 $\pm$ 0.010 V/Cell	2.50 $\pm$ 0.010 V/Cell
	Short Protection Voltage	2.00 $\pm$ 0.010 V/Cell	2.00 $\pm$ 0.010 V/Cell
	Power Down Voltage	2.75 $\pm$ 0.010 V/Cell	2.35 $\pm$ 0.010 V/Cell
Size		100x75x18mm	

## Start Using Tahmazo T6B Max Balancer

### A. Using T6B as a standalone balancer

Switch T6B Max to '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). The Status LED will be lighted ('ON') when the balancer starts to balance the cells.

Cells are balanced	Cells are not balanced
The balancer will flash the cell count (5 times) and then powers off.	The LEDs will start flashing rapidly to indicate that the cells in the pack are not equal. The balancer will start to equalize the lithium pack until the pack is balanced within 0.005V.

### B. Using T6B Max with a charger

- Connect the T6B Max Balancer's 4mm charger connectors to the charger.
- Set the proper voltage and current on the charger according to the battery pack's specifications.
- Switch T6B Max 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. (In connection mode, T6B Max Balancer is connected to the charger while the battery pack is connected to T6B Max Balancer).
- Start the charger.
- Once the charging process is completed, press the MODE button once and disconnect the balanced lithium pack.

### C. Using T6B with a discharger

- Connect the T6B Max Balancer to the charger using the 4mm gold input connectors.
- Set the proper voltage and current on the discharger according to the battery pack.

- Switch T6B Max 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. (In connection mode, T6B Max Balancer is connected to the charger while the battery pack is connected to T6B Max Balancer).
- Start the discharger.
- Once the discharging process is completed, press the MODE button once and disconnect the discharged lithium pack.

### **Using T6B Max With Tahmazo T15 AC/DC Or T30V2** *(using the interface cable)*

#### **For Charging**

When using the Tahmazo T6B Max Balancer with Tahmazo chargers, the T6B Max data interface cable can be connected to the Tahmazo chargers. In doing so, the voltage of each cell and charging data will be displayed on the LCD display on the Tahmazo chargers.

The charging sequence is the same except:

- When the battery pack is fully charged, the balancer will automatically power off, and
- You can view the charging data including voltage of each cell on the LCD display.

#### **For Discharging**

When the Tahmazo T6B Max Balancer is connected to the Tahmazo charger/discharger using the interface cable (included with T6B Max Balancer), the discharging sequence is the same except:

- When the battery pack is fully discharged, the balancer will automatically power off, and
- You can view the discharging data including voltage of each cell on the LCD display.

## Monitor LED

The flashing rhythm of the monitor LEDs is a guide to the voltage of the cells in the pack.

Monitor LED	Indicates
Off	Cell with the lowest voltage in the pack
Flashing	Cell voltage differs only slightly from the cell with the lowest voltage
Lights up for long time, continuously	Cell voltage differs significantly from that of the lowest cell

- After the charge process has been terminated it is possible that individual monitor LEDs will continue to flash sporadically, but this will only occur if the battery is a high-capacity type, and/or if the cells in the pack exhibit significant voltage differences. If you switch the T6B Max to “Disconnection mode” (by pressing the Mode button), the battery can be left connected to the unit. In this mode, the unit continues to balance the pack by discharging the individual cells as required.

- In extreme cases – defective cell, very high battery capacity, and substantial voltage differences between individual cells – the balancing function may not reach a conclusion even in “Disconnection mode”. If this should occur, the T6B Max will prevent the cells from becoming deep-discharged by switching automatically to current-saving mode when any one cell falls to 2.75 Volts (LiPo) or 2.35 Volts (LiFe). In this case, the battery should be recharged again as soon as possible.

Note:

If the monitor LED glows for a long time or continuously, you should switch to Disconnection mode, as the Balancer only switches to current-saving mode when the battery is fully balanced if set to this mode.

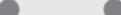
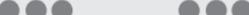
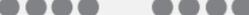
## Current Drain

During the balancing process, the T6B Max Balancer draws a current of about 15mA once the charger has terminated the charge process. An additional by-pass current of about 70mA per output flows but only for a period when the LEDs are lit. There is minimal current drain from the battery during the balancing process.

In the current-saving mode, the T6B Max Balancer draws about 0.4mA.

## Status LED

The Status LED indicates

Status LED	Function
RED 	LiPo Mode
GREEN 	LiFe Mode
	Continuous light. Balancer in Disconnection Mode, that is, the balancer is not connected to the charger
	Single rhythmic flashing. Balancer in Connection Mode, that is, the balancer is connected to the lithium charger
	Double rhythmic flashing. Over-Voltage Error, that is, the voltage of one cell is higher is higher than 4.3V (LiPo) or 3.9V (LiFe)
	Triple rhythmic flashing. Short-Circuit or low voltage Error that is, the voltage of one cell is lower than 2.0V per cell
	Quadruple rhythmic flashing. Connection Error. If you encounter this error, disconnect the battery pack from the T6B Max and T6B Max from the charger. Then reconnect them. If the problem persists, please see your nearest dealer
OFF (no lighted LED)	Current-saving mode or no battery connected

### LEGEND:

 RED  GREEN

## 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.

## Master-Slave Mode

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

## Other Balancer Configurations

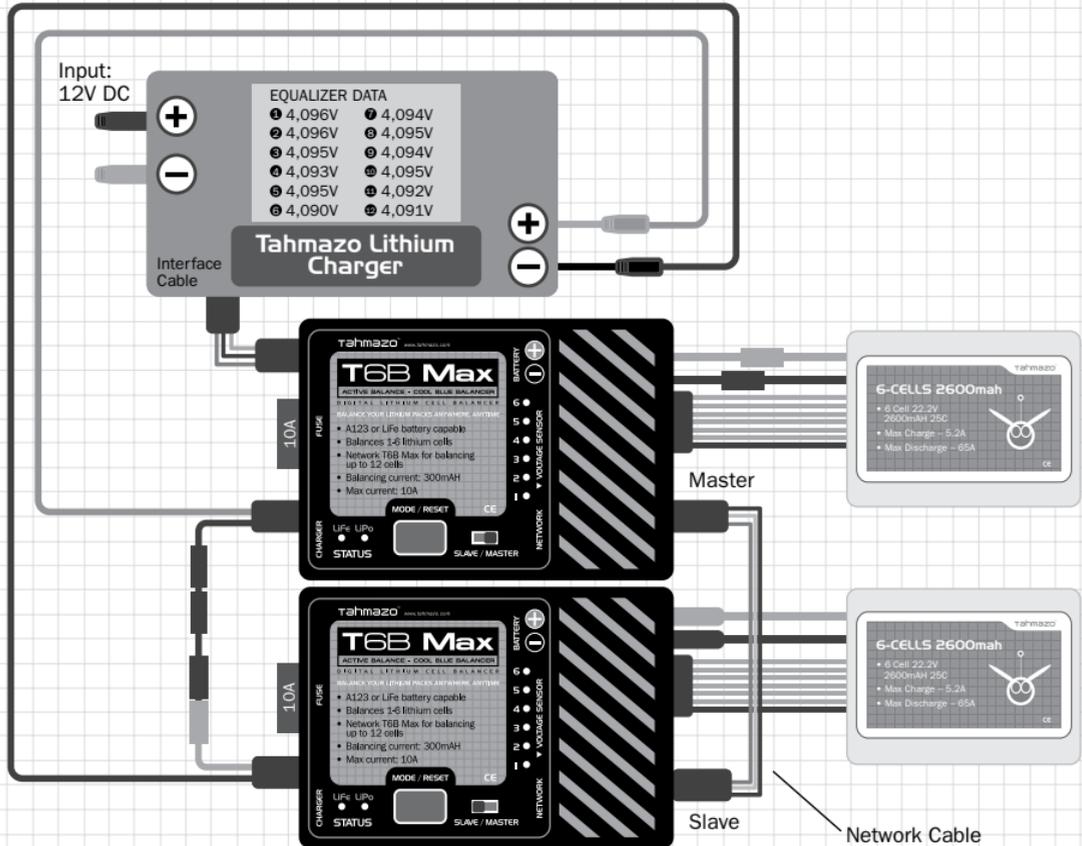
There are two ways of using two Tahmazo T6B Max balancers simultaneously for balancing up to 12 cells lithium cell-pack.

### Configuration 1 – 'Dual Battery Connection' (See Figure 1)

- Switch one T6B Max to the 'Master' mode, and the other balancer to 'Slave' mode.
- Connect the 'Master' T6B Max Balancer's data interface cable to the charger.

- Connect the (+) positive (red) input cable of 'Master' T6B Max Balancer to the charger's (+) positive output connection. Connect the (-) negative (black) input cable of 'Slave' T6B Max Balancer to the charger's (-) negative output connection.
- Connect the (-) negative (black) input cable of 'Master' T6B Max Balancer and (+) positive (red) input cable of 'Slave' T6B Max Balancer to a charger as shown in Figure 1.
- Connect the network cable between two balancers.
- Connect the lithium battery pack's output connectors and balancing connectors 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.

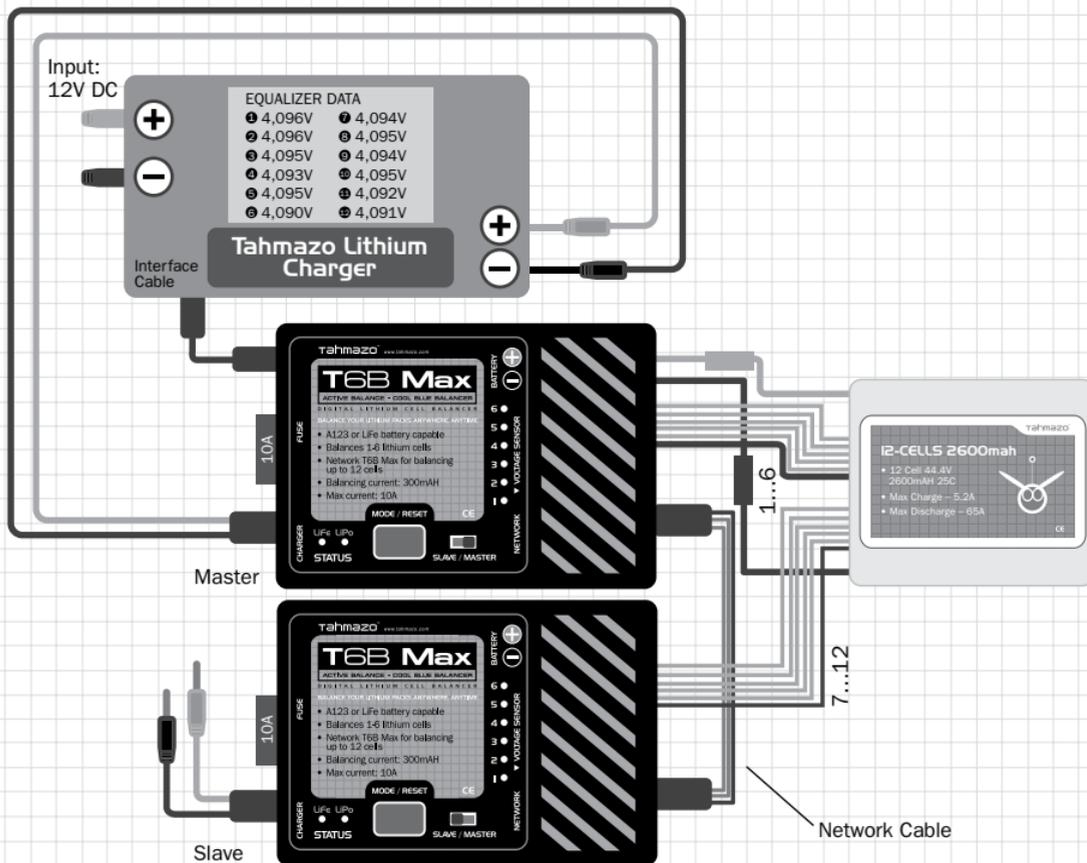
Figure 1



**Configuration 2 - 'Single Battery Connection' (See Figure 2)**

- Set 'Master' mode for one balancer, and the other balancer to 'Slave' mode.
- Connect the network cable between the two balancers.
- Connect the 'Master' T6B Max Balancer's data interface cable to the charger.
- Connect the 'Master' Balancer to a charger.
- Connect the lithium battery pack's balancing connectors 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.)
- Connect the lithium battery pack's output connectors to 'Master' Balancer.
- The charging and discharging of the lithium battery packs connected will be according to the instruction of the charger/discharger.

Figure 2



## Safety notes

- The T6B Max Balancer is designed solely for balancing rechargeable lithium batteries (LiPo and LiFe)
- Do not expose the unit to excessive heat or cold, direct sunlight, dust, dirt and damp.
- Avoid shock and pressure loads and do not subject the unit to severe vibration.
- Do not place the charger and batteries connected to it on any form of flammable surface. Do not operate the charger in the vicinity of inflammable materials or gases, on carpet or felt surface.
- The unit should never be left operating without supervision.
- Ensure that there is an unrestricted airflow to the unit's cooling slots.
- Disconnect all connections from the unit if it is not being used for a prolonged period.
- Batteries to be charged as a unit must consist of cells of the same make, the same type and the same capacity.
- Take extra care to ensure correct battery polarity and avoid short circuits.

- Read the instructions provided by the battery and charger manufacturers, and adhere to them strictly.
- At regular intervals, check the case and cables for damages.

## Warranty

Tahmazo Products warrants this product to be free from defects in materials and workmanship for a period of 12 months from date of purchase. During that period, we will repair or replace at our opinion, any products that does not meet these standards. You will be required to provide proof of purchase date (receipt or invoice) by the purchase receipt from the model shop. If, during the warranty period, this unit shows defects caused by abuse, misuse or accident, it will be repaired or replaced at our option, at a service charge not greater than 50% of the current retail list price.

This warranty does not cover components worn by use, application or reverse voltage, cross connections, poor installation, subject of components to foreign materials, any alterations to wires or tampering. In no case shall our liability exceed the original cost of the product. Under no circumstances will the purchaser be entitled to consequential or incidental damages. If you attempt to disassemble or repair this unit, it may void the warranty.

**Service Procedure**

For servicing of your Tahmazo T6B Max Balancer, either in or out of warranty, you can send them to our nearest dealer to you, or by post paid and insured to:

Tahmazo Products Pte Ltd  
126 Joo Seng Road,  
Goldpine Industrial Building,  
#08-06. Singapore 368355  
Email: [service@tahmazo.com](mailto:service@tahmazo.com)  
Website: [www.tahmazo.com](http://www.tahmazo.com)

*Please include your address and email with the unit.*

Any repairs carried out under warranty do not extend the original guarantee period. Be sure to send proof of purchase when you send your unit to us.

**Disclaimer**

Tahmazo Products Pte Ltd is not responsible for your use of this product, or for any damages or injuries you may cause or sustain as a result of its usage. We are not able to ensure that you follow the instructions supplied with the device, and we have no control over the methods you use for operating, using and maintaining it and the batteries to which it is connected. For this reason, we are obliged to deny all liabilities for loss, damage or costs which are incurred due to the incompetent or incorrect use and operation of our products, or which are connected with such operation in any way.

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