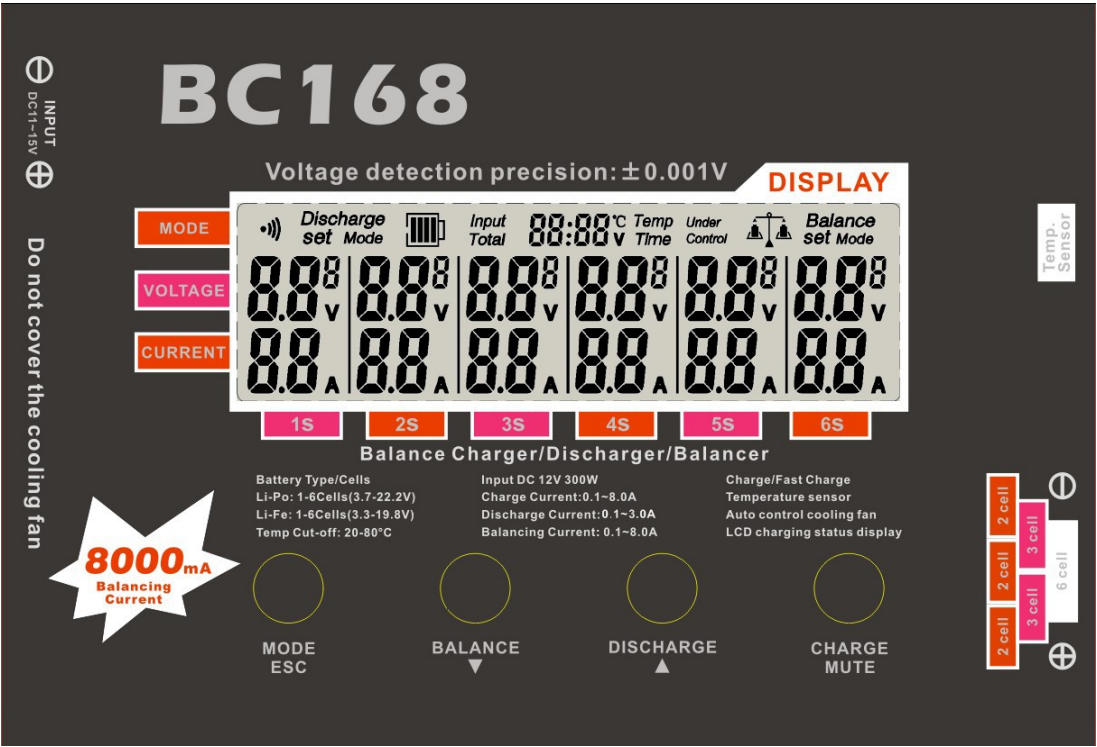


Super Speed Balance Charger

BC168



User Manual

Thank you to purchase BC168 Super Speed Balance charger. Please read the Instruction Manual carefully to ensure well use the product.

Parameter

Input Voltage Range	11~15V DC
Input Power Range	300W
Charge Power	201.6 W (33.6W x 6Cells@Cells=4.2V)
Discharge Power	75.6 W (12.6 W x 6Cells@Cells=4.2V)
Balance Power	201.6 W (33.6W x 6Cells@Cells=4.2V)
Charge Voltage Adjustable range	1.50V~4.20V (default value 4.2V)
Charge Current Adjustable range	0.1A~8.0A (default value 3.0A)
Discharge Voltage Adjustable range	2.00V~4.20V (default value 3.80V)
Discharge Current Adjustable range	0.1A~3.0A (default value 3.0 A)
Balance Voltage Adjustable range	2.00V~4.20V (default value 3.80V)
Balance Current Adjustable range	0.1A~8.0A (default value 3.0 A)
Charge temperature alarm adjustable range	20°C~80°C (default value 80°C)
Display backlight brightness adjustable range	0~5 (default value 5)
Display backlight off time adjustable range	--: -- ~ 0:05 ~ 5:00 (default value 0:30)
Charge Voltage Precision	±0.001V
Discharge Voltage Precision	±0.001V
Balance voltage Prcision	±0.001V
Charge shift efficiency	≥ 80%
Charger consumed power	≤ 1.8W (12V 0.15A)
Suitable battery type	1Cells ~ 6Cells (Working well with LiPo/ Lilo / Life)
Weight	1Kg
Dimension	165X123X52mm

Product Function Characteristic:

- a. The charger is design for Li-polymer and Lithium Cell. Available to charge, balance, discharge, measure the series batteries accurately.
- b. The charger will use big LCD screen, available to indicate 6 Cell battery statuses.
- c. The charger use 4 button controls all function. 3 of the buttons are shortcut key, only need to press and then can finish charge, fast charge, balance, discharge all functions.
- d. This charger use high-precision battery detects PCB, the voltage control accuracy reach $\pm 0.001V$. the current control accuracy reach $\pm 0.1A$ based on any situation of the battery. Once finished the discharge, the voltage tolerance of battery will be $\leq 0.002V$.
- e. There is no conflit between each circuit. The power can maintain 8A output, all voltage, current will be display accordingly.
- f. Well designed for protection of whole circuit. The product will be stop working if there is exceed or overload.
- g. Automatic heat protection & thermal protection designed.
- h. The rate voltage for DC is 11V-15V when input voltage less 11V or over 15V, the charger will be under protection status and then indicate the error of wrong input voltage.

This charger working with free option input current. The current formula as followings:

Maximum Power / Input Voltage = Input current.

Warning: The power supply can not work under full load; we need to work 10% tolerance space for input current.

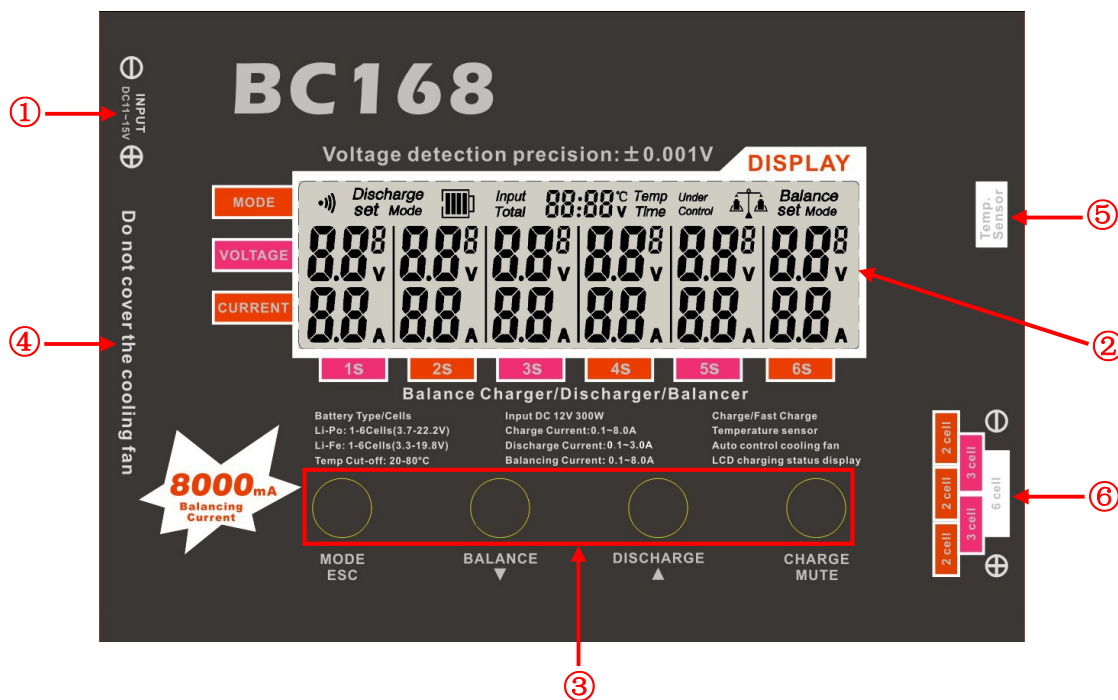
Caution

- a. The product must be working visible to see during the charging. Please take out the battery when away.
- b. Make sure the battery charge voltage factors all correct to avoid any problems (Specially Ni-cd battery can not over charge, otherwise will cause fire)
- c. Please don't disassemble or modify the battery personally.
- d. Please don't cover the heat sink or put it working under sunshine, seal space or high temperature environment. It will effect the charger can not work properly.
- e. Please don't put metal or other conductive material to connect to the charger.
- f. Please stop to use while the battery with leaking, expand, peeling off, color change or other non-common situation.
- g. Please ote the case outside temperature will be high while working for high power.

h. Different battery parameter:

	LiPo	Lilo	LiFe
Battery standard voltage	3.7V/Cell	3.6V/Cell	3.3V/Cell
Maximum charge voltage	4.2V/ Cell	4.1V/Cell	3.6V/Cell
Super speed charge current	<1C	<1C	<4C
Discharge cut-off voltage	>3.0V/Cell	>2.5V/Cell	>2.0V/Cell

1. Charger screen / button diagram



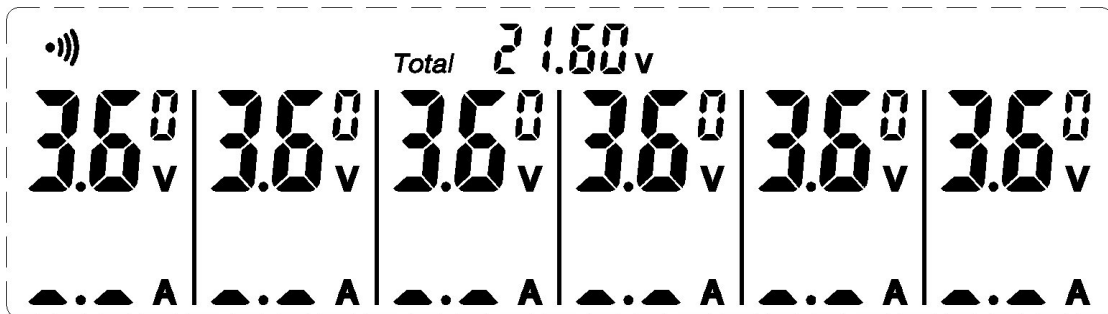
1. DC input 2. LCD screen 3. Function button 4. Cooling Fan
 5. Temperature sensor port/Control Port 6. Output port/Balance socket

Please read the Instruction Manual carefully before use.

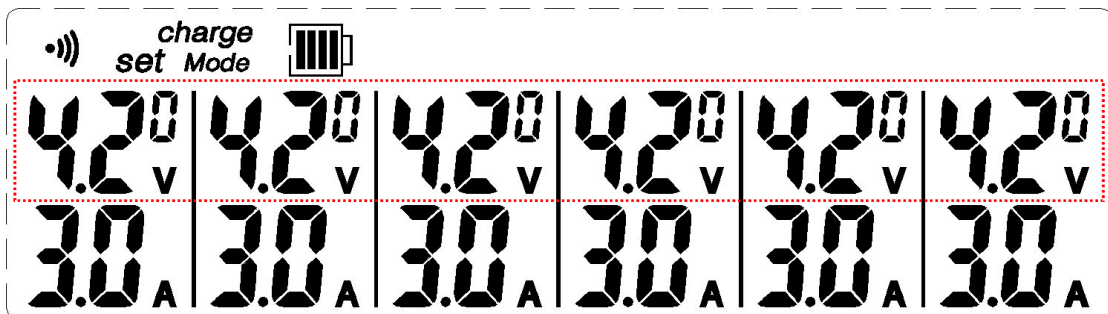
2.Set up:

information tips: Long press the mode button to return to the standby mode.

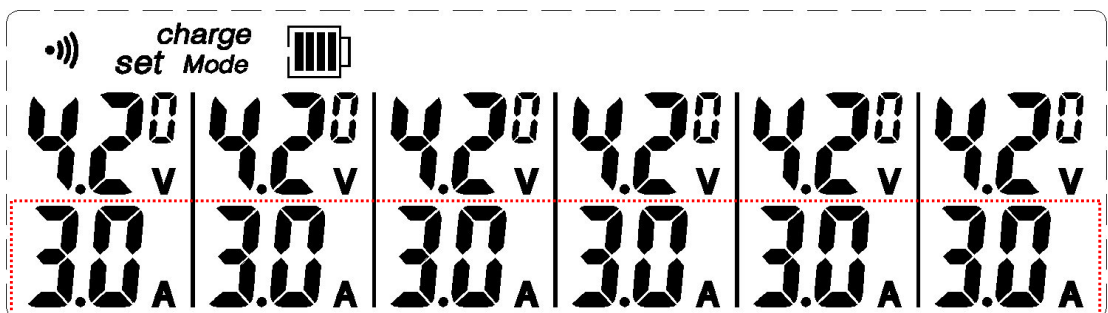
- a. Under standard mode, push MODE to enter charge cut-off voltage set up mode.



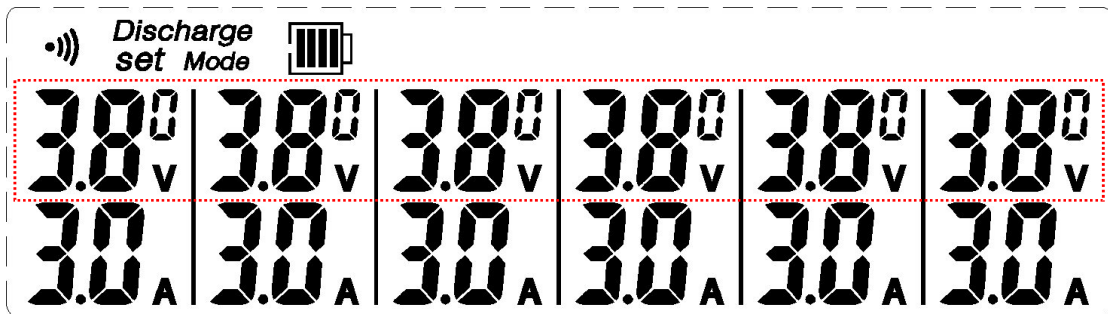
- b. Under charge cut-off voltage mode, Push \uparrow or \downarrow to set up the cut-off voltage. After that and then push MODE to enter charge current set up mode. (setting range: 1.50V ~ 4.20V, default value: 4.20V, this only suitable Lipo batteries, LiFe need to double check with the battery manufacturer.)



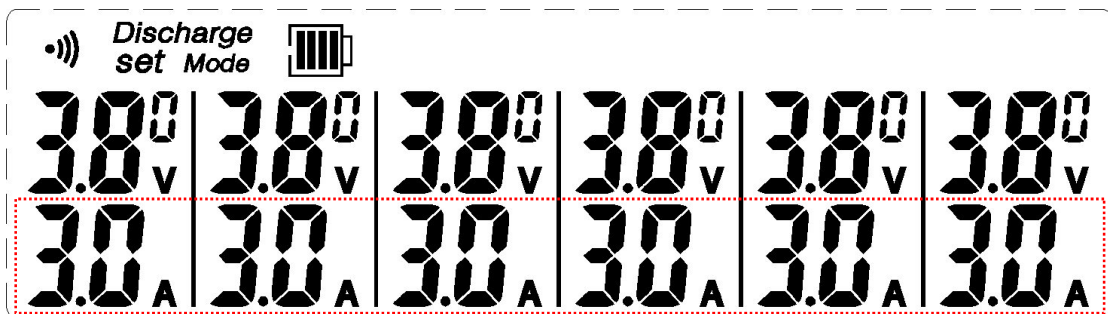
- c. Under charge current mode, push \uparrow or \downarrow , and then set up charge current. After that and then push MODE to enter discharge cut-off voltage mode. (setting range: 0.1A ~ 8.0A, default value 3.0A)



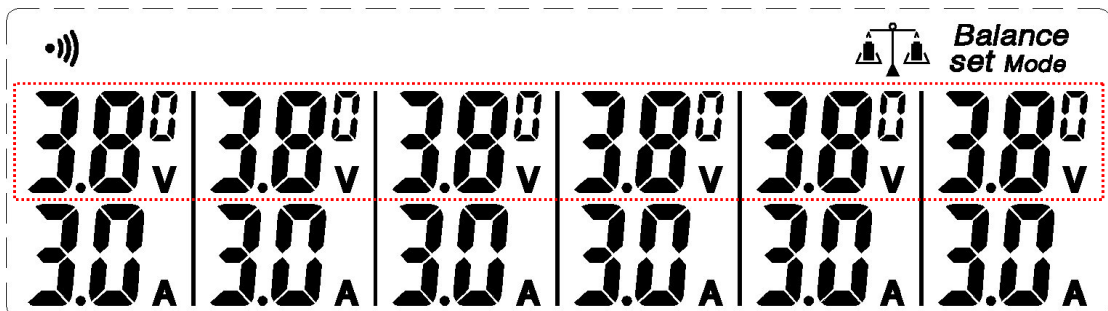
- d. Under discharge cut-off voltage mode, Push \uparrow or \downarrow , and then set up discharge cut-off voltage, after than push MODE to enter discharge current set up MODE. (setting range: 2.00v ~ 4.20V, default value 3.80V)



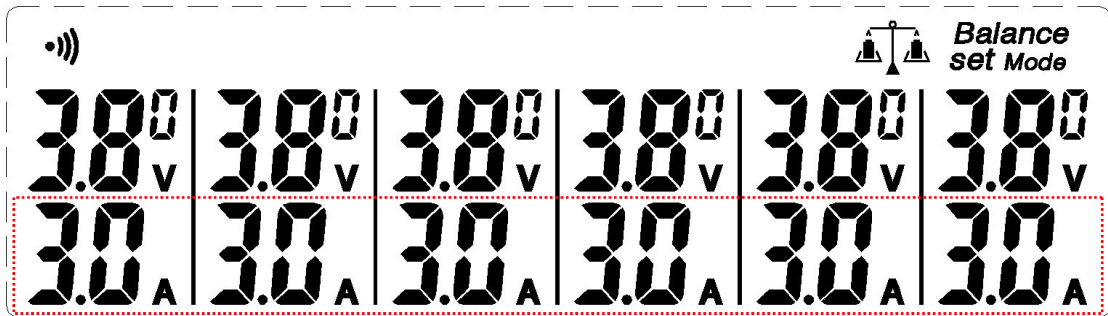
- e. Under discharge curent set up Mode, Push \uparrow or \downarrow , and then set up dicharge current, after than push MODE to enter balance minimum voltage set up mode. (setting range: 0.1A ~ 3.0A, default value 3.0A)



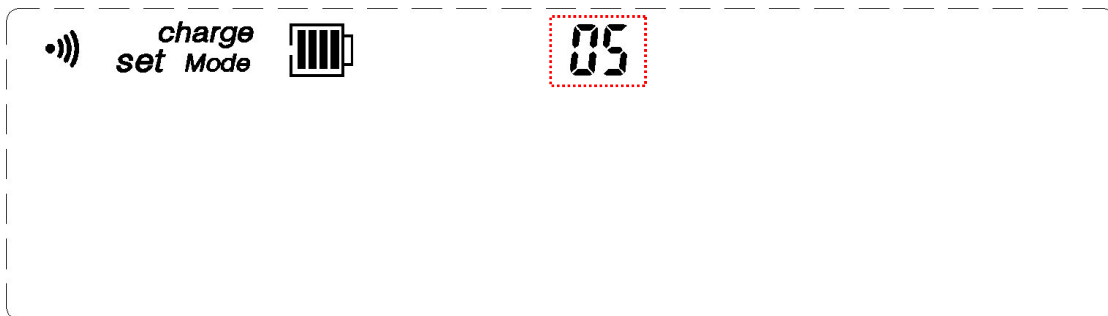
- f. Under Balance minimum voltage set up MODE, Push \uparrow or \downarrow to set up balance minimum voltage, after than push MODE to enter balance current set up mode. (setting range: 2.00V ~ 4.20V, default value 3.80V)



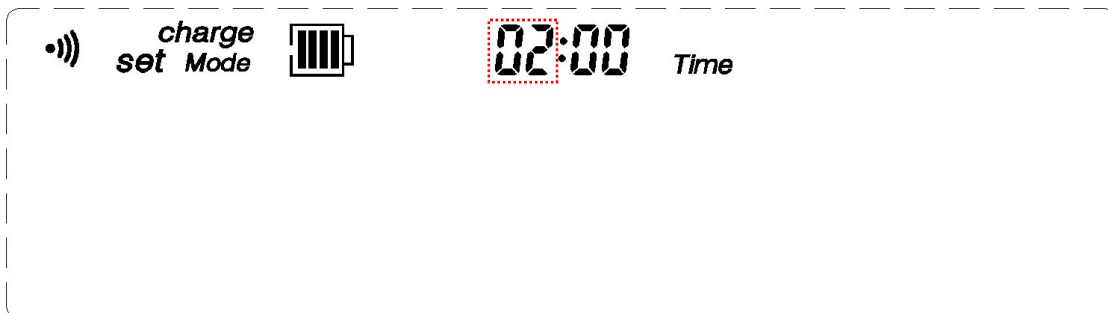
- g. Under Balance current set up mode, push ↑ or ↓ to set up balance current, after that push MODE to enter charge trickle frequency set up mode. (setting range: 0.1A ~ 8.0A, default value 3.0A)



- h. Under charge trickle frequency set up mode, push ↑ or ↓ to adjust the trickle speed. After that and then push MODE to enter charge time set up mode. (setting range: 5 ~ 30, default value 5)



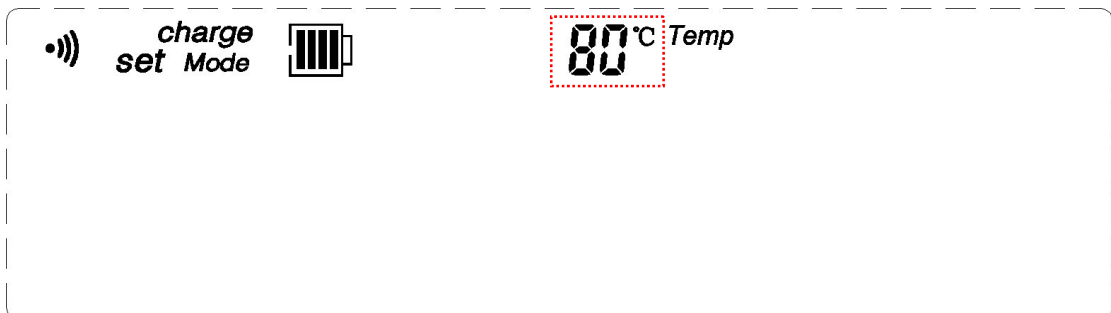
- i. Under charge time set up mode, push ↑ or ↓ to set up maximum charge time, after that push MODE to enter charge time (minute) set up. (setting range: 01:00 ~ 99: 00, default value 2:00)



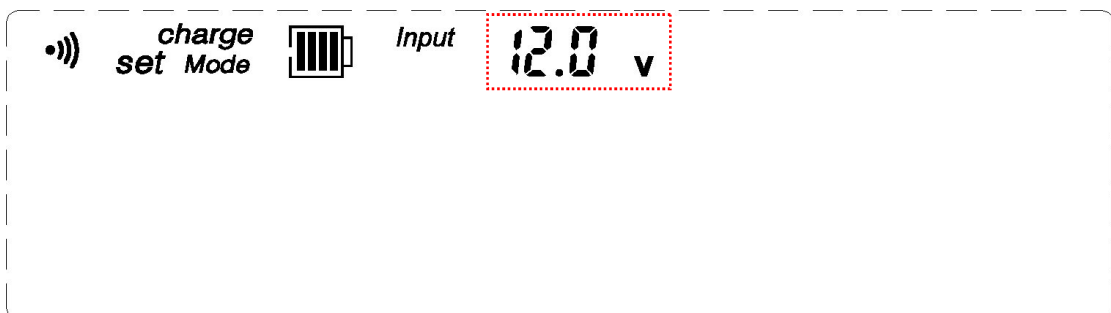
- j. Under charge time (minute) set up mode, push ↑ or ↓ to set up maximum charge time (minutes), after that push MODE to enter Maximum Temperature set up mode. (setting range: 00:01 ~ 00:59, default value 2:00)



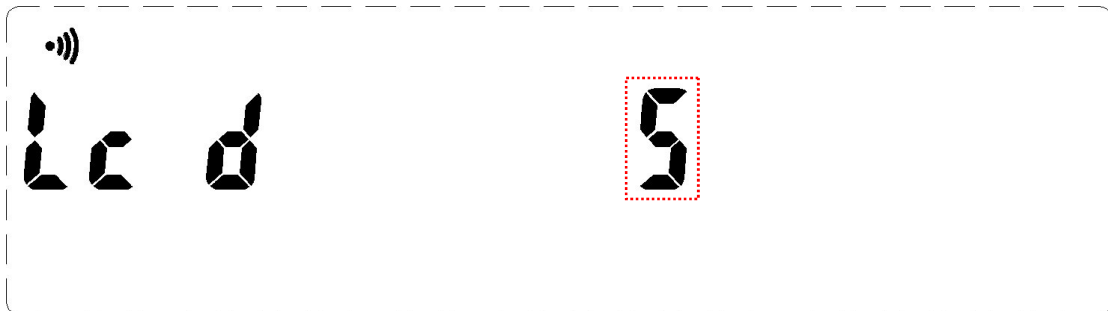
- k. Under Maximum Temperature set up mode, push ↑ or ↓ to set up Maximum battery temperature, after that push MODE to enter power input warning set up mode. (setting range: 20°C~ 80°C, default value 80°C)



- l. Under power input voltage warning mode, push ↑ or ↓ to set up power input voltage warning, after that push MODE back to standard mode. (setting range: 11.0V ~ 15.0V, default value 12.0V)



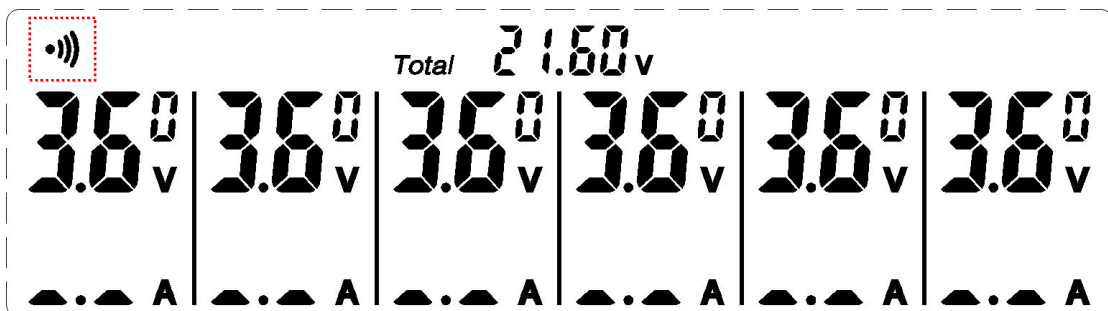
- m. setting mode in the brightness of the display screen, press the up or down arrow keys, you can set the screen brightness set, press the MODE button to enter the display backlight off time setting mode. (setting range: 0~5, default value 5)



- n. Set mode display backlight off time, Press the up or down arrow keys, You can set the display backlight off time, Press the MODE key to return to the set standard mode. (setting range: -:-- ~ 0:05~5:00, -:-- open display backlight, default value : 0:30, Unit: seconds.)



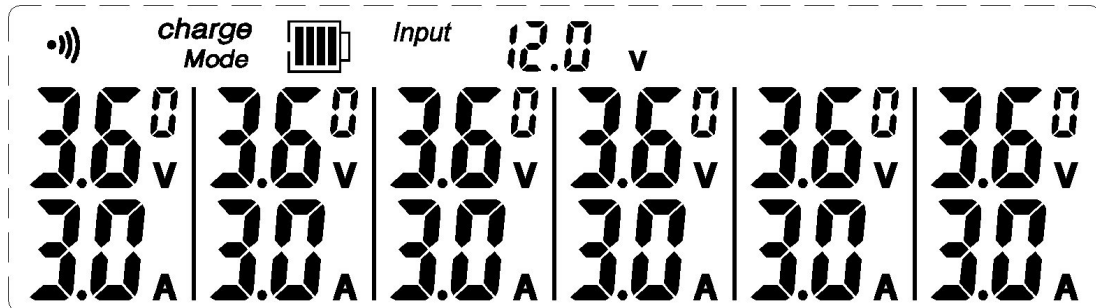
- o. Under any mode, push MUTE to switch off or switch on.



3. Charge:

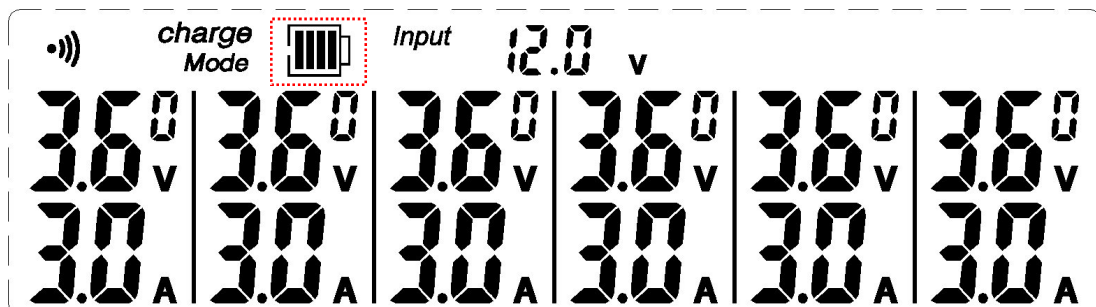
a. Standard charge:

Under standard charge mode, put battery into the charger, short push charge button and then go to charge mode.



b. Super speed charge

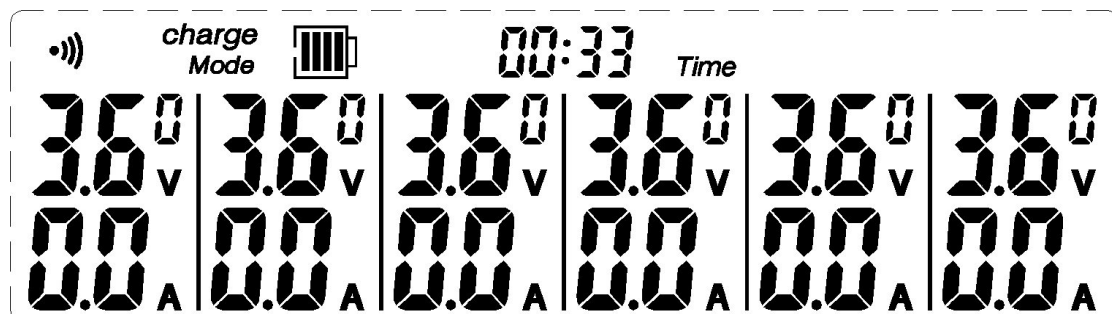
Under standard mode, connect the battery to charge port, push charge button 3 seconds and then go to super speed charge mode. There is a different icon display between standard charge mode and super speed charge mode.



(Remark: Super Speed Charge mode comply with no good quality battery or the situation need fast charge)

c. Pause Charge:

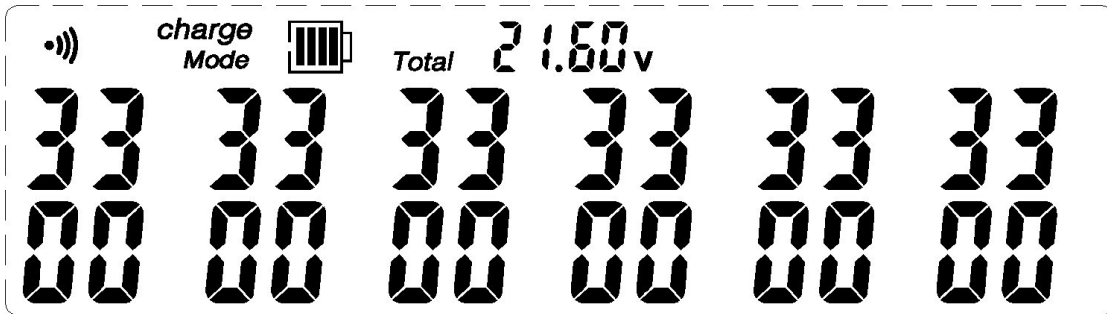
Push charge function button during charge, and the pause charge status will affect the indicator light flashing.



d. Charge Power

Short push balance function button or discharge function bottom to charge power indication system during the charge. Unit as mAh. And then short push balance function button or discharge function button back to charge voltage / current indication.

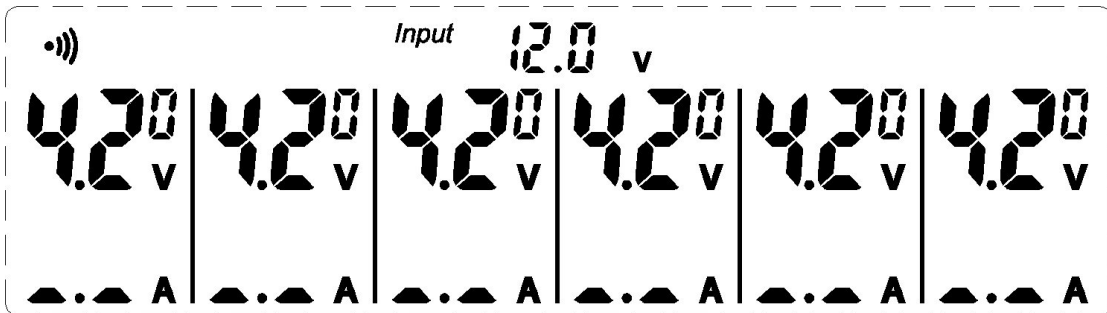
(Under charge mode, will automatically back to charge voltage / current mode 10 seconds late)



e. Exit discharge

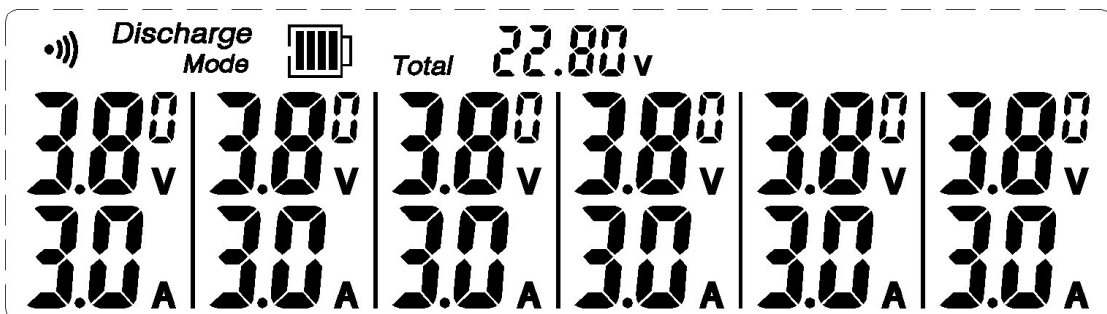
Push ESC to exit charge mode and back to standard mode.

The system will automatic back to standard mode while the charge finished.

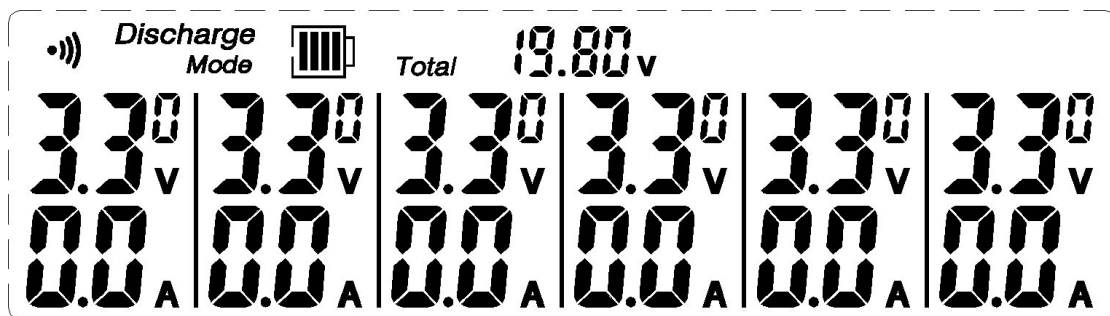


4. Discharge

- a. Short push the discharge button to discharge the batteries. Push ESC during the discharge to exit the discharge mode. And then back to standard mode.

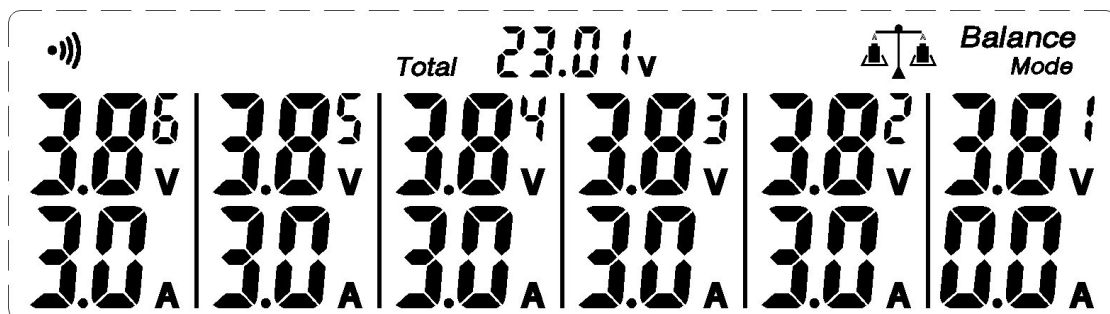


- b. Discharge finished indication



5. Balance

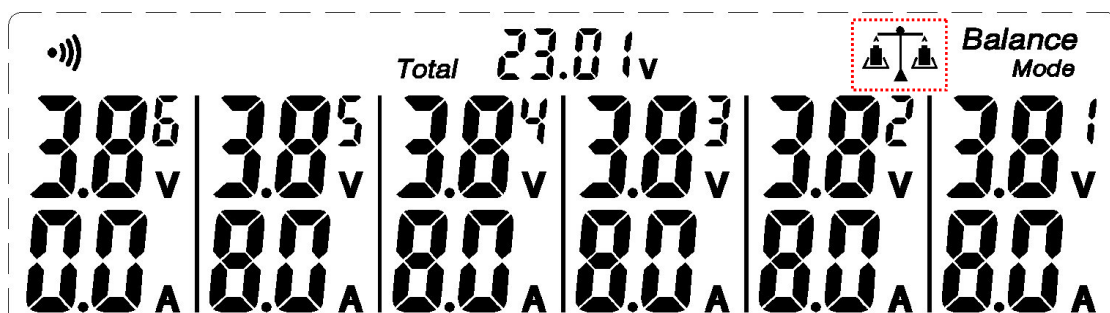
- a. Under standard mode, and Insert the balance voltage battery to charger. Short push the balance function button to achieve voltage balance.



Remark:

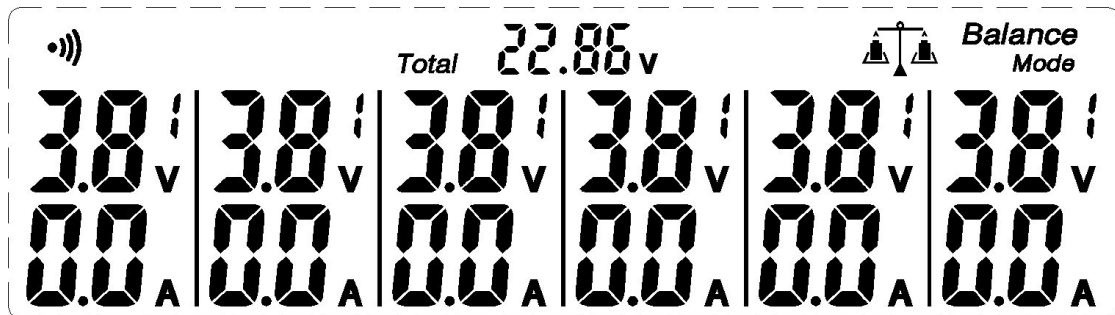
The maximum balance current is 3.0 based on this mode. Will keep the minimum batteries voltage as standard. And use the discharge status to balance the batteries.

- b. Under standard mode, insert the balance voltage batteries to charger; push the balance button at 3 seconds to super speed balance mode. There is different indication between super speed balance mode and normal balance mode.

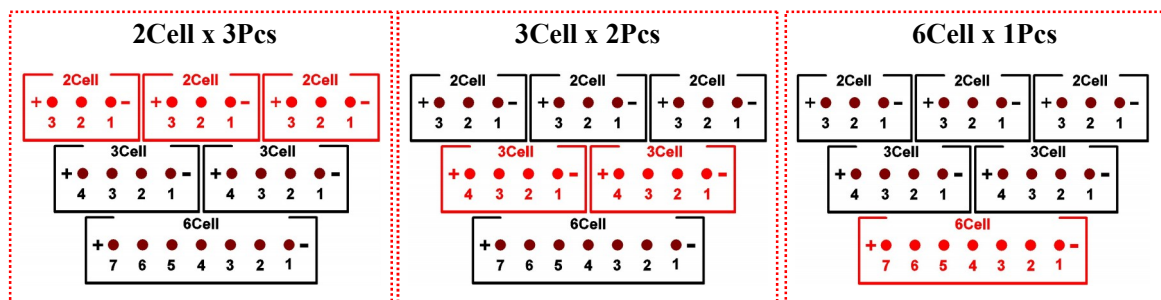


Fast Balance mode Maximum current is 8.0A.

- c. Press (ESC) to exit the Balance mode during any of the balance mode. Back to standard mode, It will be indicate as below after balance finished.



6. Battery's connection diagram.

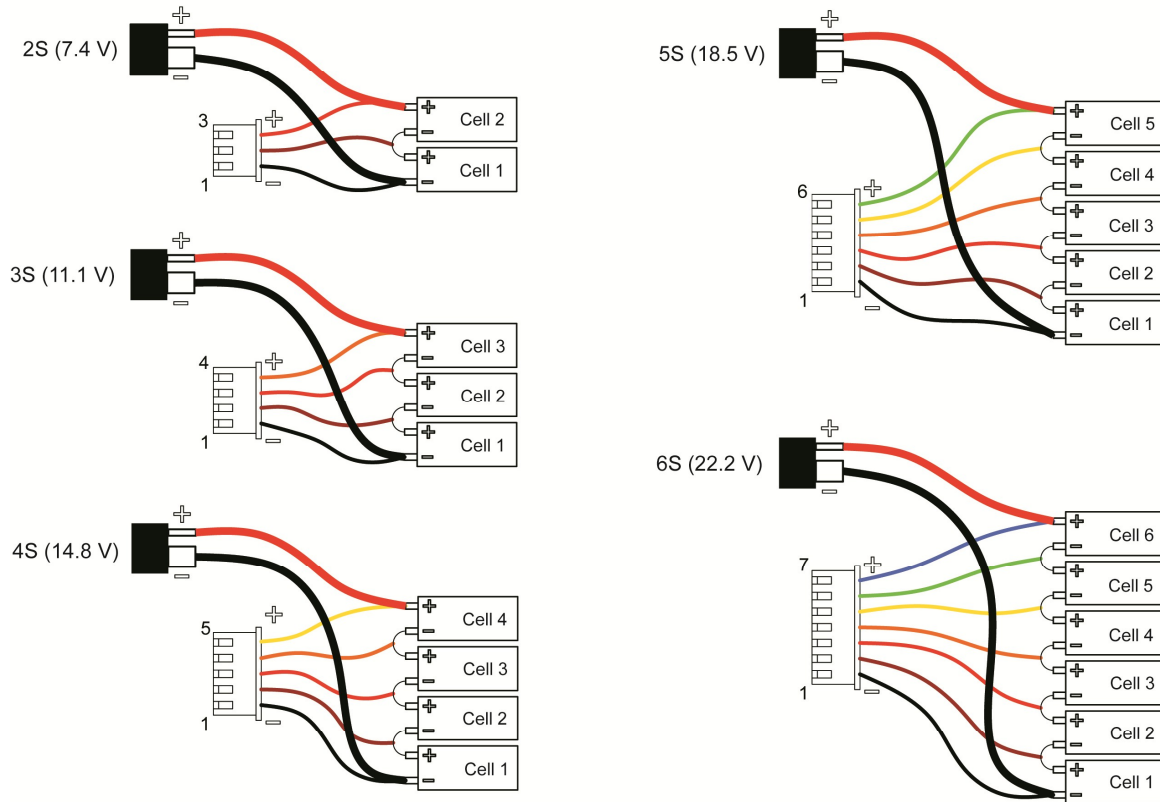


Warning: 3 pieces 2 Cell Battery Pile or 2 pieces 3 Cell Battery Pile or 1 piece 6 Cell Battery Pile available connect one time Maximum. Otherwise, it will burn the charger and battery pile.

1 Cell, 4 Cell, 5 Cell battery pile direct insert 6 Cell Port to use. Please bear in mind the Positive and Negative.

7. Battery pile 1 Cell ~ 6 Cell Connection Diagram

Harness Wiring For Lithium Polymer nominal Packs

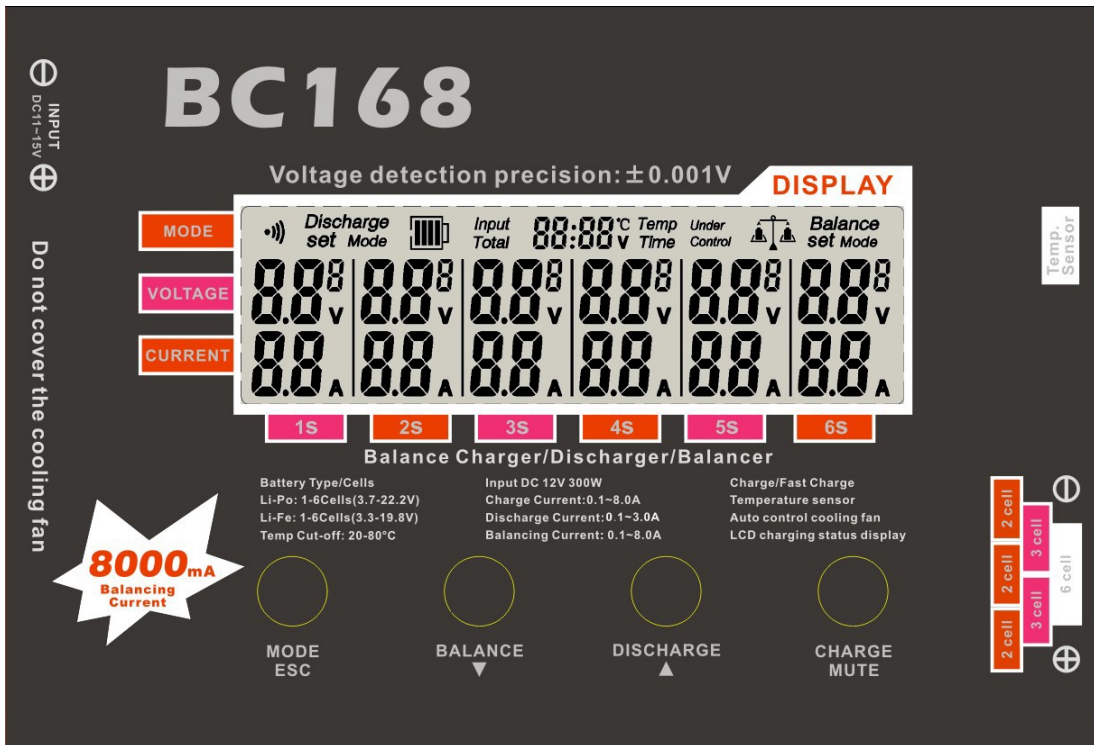


**** Warning : Connector pin #1 must be "Nagative" (Ground) !!**

超高速平衡充電器

Super Speed Balance Charger

BC168



用戶使用說明書

感謝您購買BC168超高速平衡充電器，使用前請仔細閱讀本說明書，以便您能更好地使用本產品。

參數指標

輸入電源電壓	11~15V DC
輸入電源功率	300W
充電功率	201.6 W (33.6W x 6Cells@Cells=4.2V)
放電功率	75.6 W (12.6 W x 6Cells@Cells=4.2V)
平衡功率	201.6 W (33.6W x 6Cells@Cells=4.2V)
充電電壓調節範圍	1.50V~4.20V (預設4.20V)
充電電流調節範圍	0.1A~8.0A (預設3.0A)
充電溫度報警調節範圍	20°C~80°C (預設80°C)
放電電壓調節範圍	2.00V~4.20V (預設3.80V)
放電電流調節範圍	0.1A~3.0A (預設3.0A)
平衡電壓調節範圍	2.00V~4.20V (預設3.80V)
平衡電流調節範圍	0.1A~8.0A (預設3.0A)
充電電壓精度	±0.001V
放電電壓精度	±0.001V
平衡電壓精度	±0.001V
充電轉換效率	≥ 80%
充電器待機消耗功率	≤ 1.2W (12V 0.1A)
支援電池類型	1Cells ~ 6Cells (支持LiPo/LiI/LiFe)
充電器重量	1Kg
充電器尺寸	165X123X52mm

產品性能特點

- 本充電器專為鋰電池及鋰鐵電池設計，可精確對多顆串聯電池執行充電、平衡、放電、測量等工作。
- 本充電器使用大尺寸液晶螢幕，可同時顯示 6Cell 電池狀況。
- 本充電器採用四個按鍵控制所有功能，其中有三個按鍵為快速鍵，只需按壓一次按鍵即可快捷執行充電、快速充電、平衡、放電四項功能。

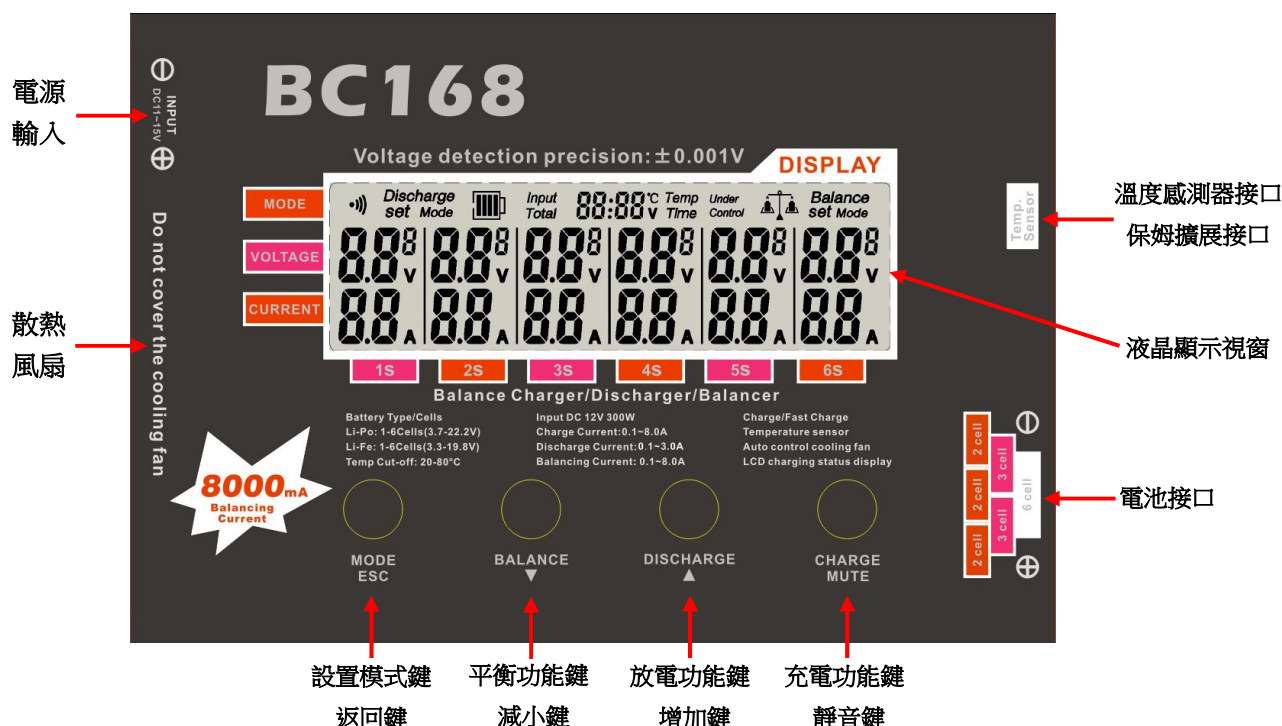
- d. 採用了高精度的電池電壓檢測電路，電壓控制精度為±0.001V，電流控制精度為±0.1A，無論每路充電電池的特性如何，充電結束時各路電池電壓偏差≤0.002V。
- e. 真正的六路獨立充電互不干涉，動力強勁可以持續 8A 的電流輸出，即時顯示六路電池的電壓和充電電流，對電池的充電狀態一目了然。
- f. 全面的保護電路，輸入過壓、反接保護，輸出反接保護。當充電器檢測到某路電壓已經到達預設值時，這路充電電路將被鎖定使其停止工作，讓你的電池沒有過充的擔憂。
- g. 全自動溫控散熱設計，充電器內部溫度過高時，充電器自動啟動散熱風扇，而且轉速隨溫度的變化自動調整。如果因為某種原因散熱不良超過了極限溫度，充電器會暫停充電(防止器件損壞)，待溫度回落之後自動恢復充電。
- h. 充電器輸入的工作電壓為直流 11V~15V，當輸入電壓低於 11V 或高於 15V 時，充電器則將進入保護狀態，在有報警音提示的同時，螢幕會以閃爍的方式顯示當前不正常的輸入電壓，並自動暫停對電池的充電，待輸入電壓恢復到正常範圍時，充電器會自動繼續執行充電工作。(充電器輸入電壓值在設置功能表下使用者可自行設置，設置範圍：11V~15V，預設值為：12V)
- i. 充電器的輸入電流可任意選擇，根據使用者需要的最大充電電流來決定，用以下公式可以計算出來。例如輸入電壓為 12V，最大充電電流為 3A，同時充 6S 的電池，輸入電流為：最大輸出功率 $3A \times 4.2V \times 6 / 0.85 = 88W$ ， $88W / \text{輸入電壓 } 12V \approx 7A$ 的輸入電流，考慮到電源不應該滿載運行，應該增加 10% 的餘量，輸入 8A 即可。
又如輸入電壓為 12V，最大充電電流為 5A，同時充 6S 的電池，輸入電流為：最大輸出功率 $5A \times 4.2V \times 6 / 0.85 = 148$ 瓦， $148 \text{ 瓦} / \text{輸入電壓 } 12V \approx 12A$ 的輸入電流。

注意事項

- a. 為確保安全，充放電時請務必在視線範圍內進行。若需離開，應將電池取出，以免產生不可預期的危險及損失。
- b. 保證電池的充電電壓參數設置正確，如果選擇錯誤不僅可能損壞電池，還可能產生危險（特別是鋰電池不能過充過放，電池可能會引起火災）。
- c. 請勿改造或拆卸充電器。
- d. 請不要遮蓋充電器上的風扇口，不要在陽光直射、密閉空間或者高溫的環境中使用。在以上這些情況下，充電器內部的溫度保護機制可能起作用，使充放電不能正常進行。
- e. 請勿將金屬絲或者其他導電的物體落入充電器中。
- f. 若電池出現漏液、漲鼓、外皮脫落、顏色改變或者變形等異常，請勿進行充放電。
- g. 本充電器通過風扇強制散熱，進行大功率充放電時，外殼溫度會升高，敬請留意。
- h. 下表為各類電池的指標：

	LiPo	Lilo	LiFe
電池標稱電壓	3.7V/節	3.6V/節	3.3V/節
充電最大極限電壓	4.2V/節	4.1V/節	3.6V/節
快速充電電流	<1C	<1C	<4C
放電截止電壓	>3.0V/節	>2.5V/節	>2.0V/節

1. 充電器螢幕及按鍵位置圖

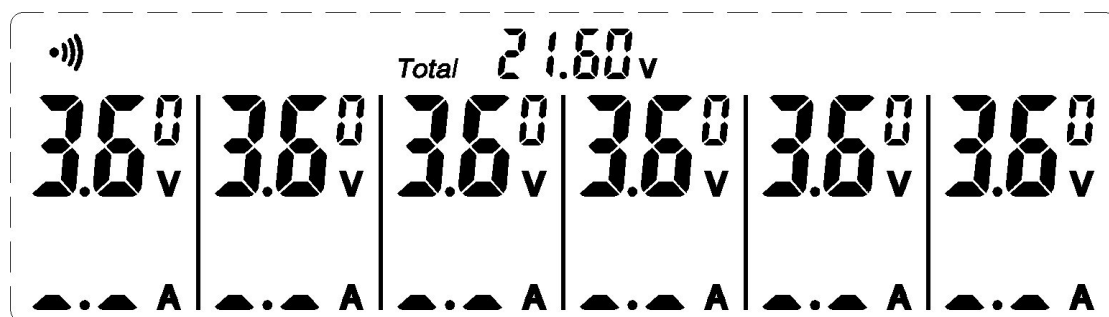


由於鋰聚合物電池及鋰鐵電池均為高能量密度並具高放電能力之儲能裝置，故使用本充電器前務必耐心詳細閱讀本說明書，以免因錯誤操作、設定而導致危險或損壞電池！

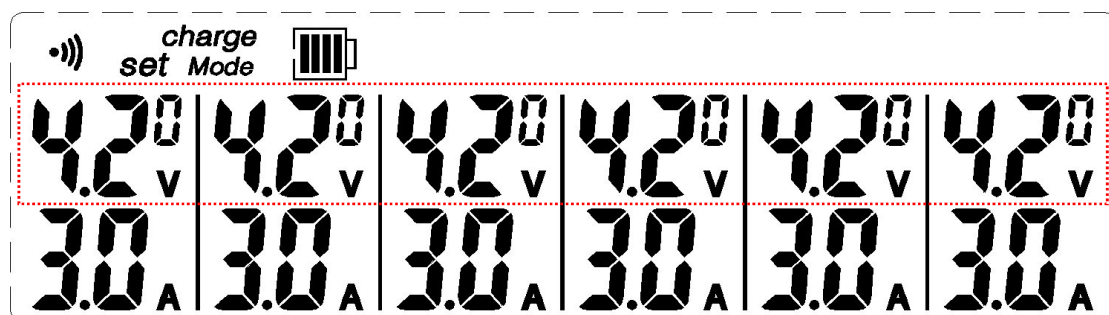
2. 充電器設置

提示：在任何參數設置模式下長按 **MODE** 鍵即可返回待機模式。

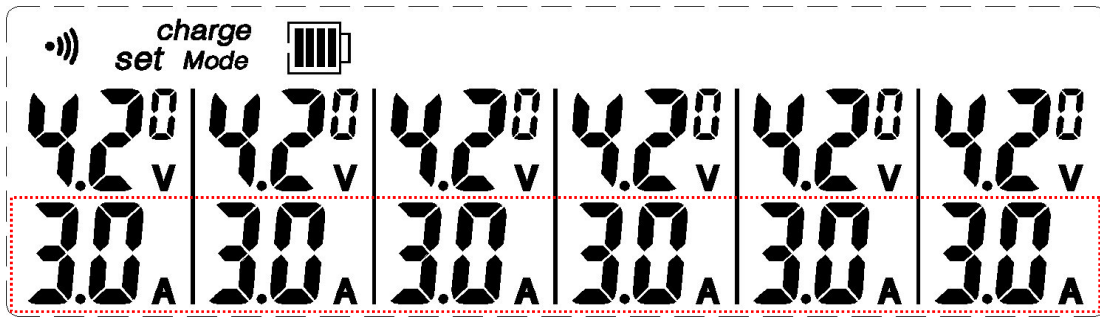
a. 在待機模式下，按下 **MODE** 鍵即進入充電截止電壓設置模式。



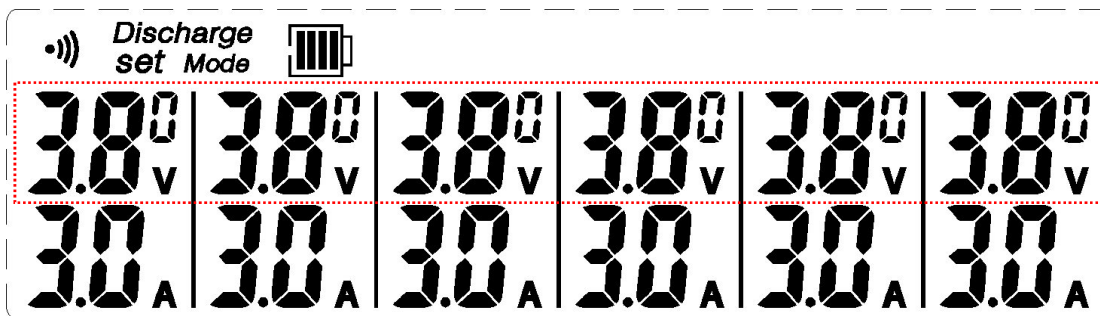
b. 在充電截止電壓設置模式下，按下↑或↓鍵，可以設置充電截止電壓，設置完成按下 **MODE** 鍵進入充電電流設置模式。（設置範圍：1.50V~4.20V，預設值為 4.20V，僅適用一般聚合物電池，鋰鐵電池請查詢電池供應商。）



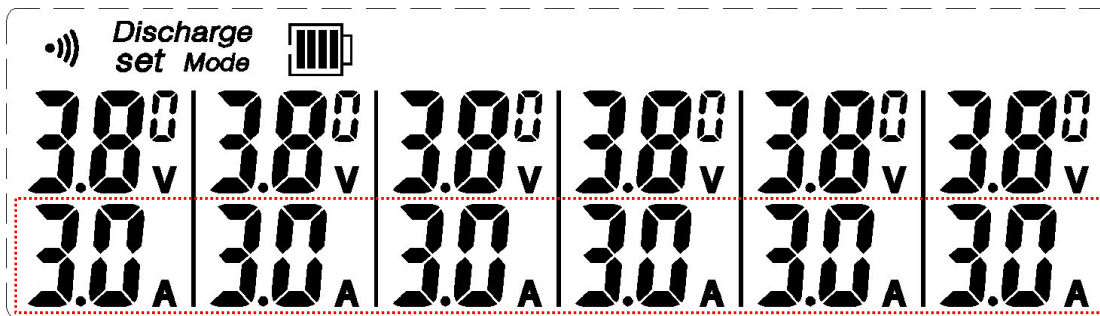
- c. 在充電電流設置模式下，按下↑或↓鍵，可以設置充電電流，設置完成按下 MODE 鍵進入放電截止電壓模式。（設置範圍：0.1A~8.0A，預設值為 3.0A。）



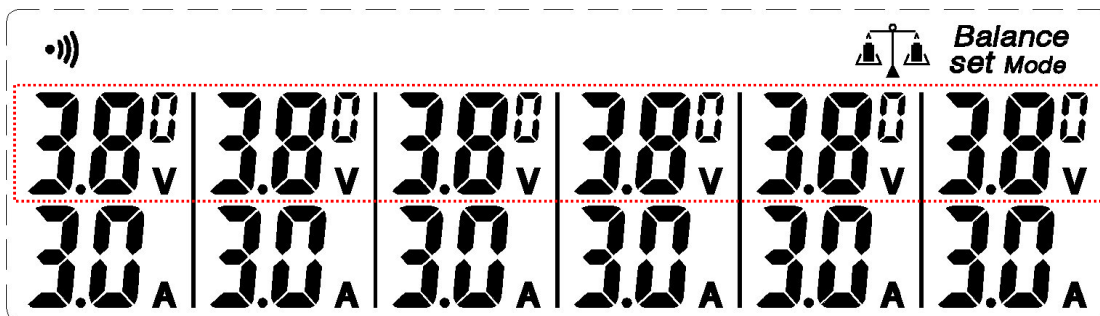
- d. 在放電截止電壓設置模式下，按下↑或↓鍵，可以設置放電截止電壓，設置完成按下 MODE 鍵進入放電電流設置模式。（設置範圍：2.00V~4.20V，預設值為 3.80V。）



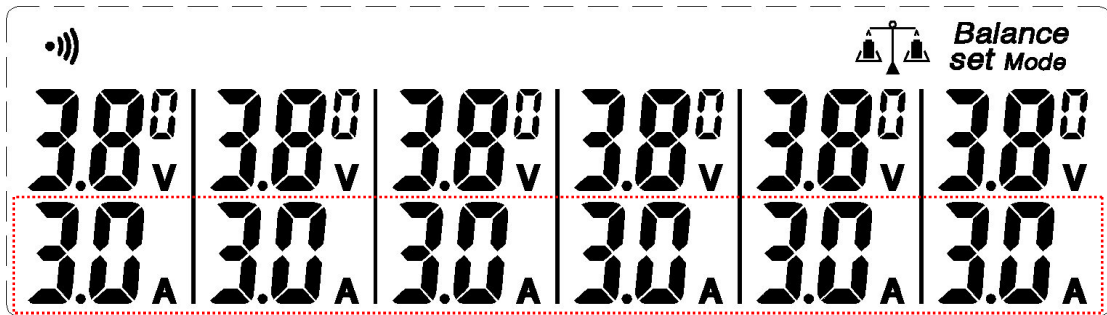
- e. 在放電電流設置模式下，按下↑或↓鍵，可以設置放電電流，設置完成按下 MODE 鍵進入平衡最低電壓設置模式。（設置範圍：0.1A~3.0A，預設值為 3.0A。）



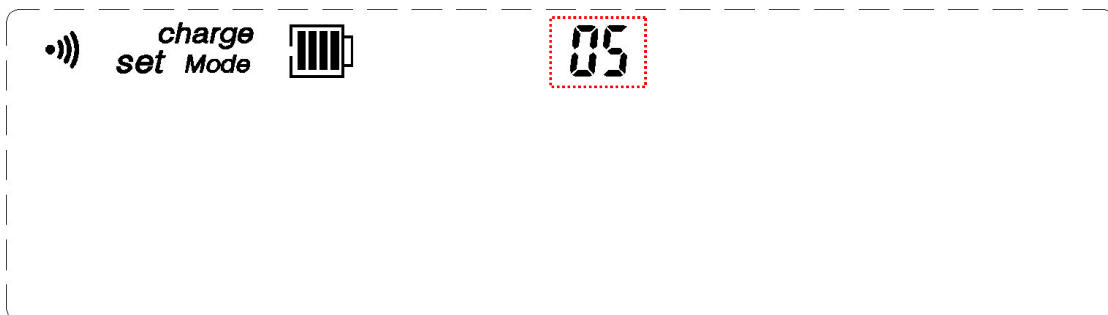
- f. 在平衡最低電壓設置模式下，按下↑或↓鍵，可以設置平衡最低電壓，設置完成按下 MODE 鍵進入平衡電流設置模式。（設置範圍：2.00V~4.20V，預設值為 3.80V。）



- g. 在平衡電流設置模式下，按下↑或↓鍵，可以設置平衡電流，設置完成按下 MODE 鍵進入充電涓流次數設置模式。（設置範圍：0.1A~8.0A，預設值為 3.0A。）



- h. 在充電涓流速度設置模式下，按下↑或↓鍵，可以設置充電涓流速度，設置完成按下 MODE 鍵進入充電時間（時）設置模式。（設置範圍：5~30，預設值為 5。）



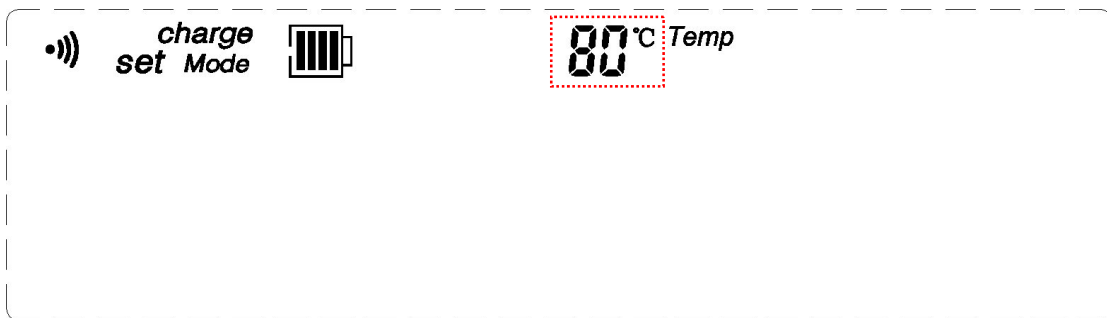
- i. 在充電時間（時）設置模式下，按下↑或↓鍵，可以設置最大充電時間（時），設置完成按下 MODE 鍵進入充電時間（分）設置模式。（設置範圍：01:00~99:00，預設值為 2:00。）



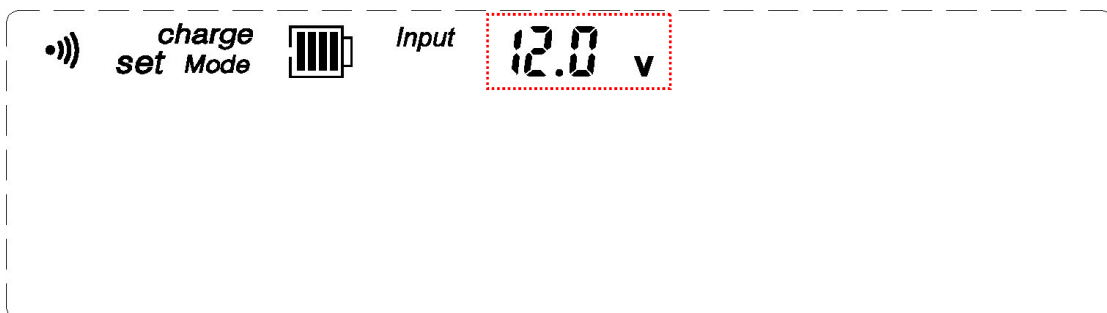
- j. 在充電時間（分）設置模式下，按下↑或↓鍵，可以設置最大充電時間（分），設置完成按下 MODE 鍵進入充電最大電池溫度設置模式。（設置範圍：00:01~00:59，預設值為 2:00。）



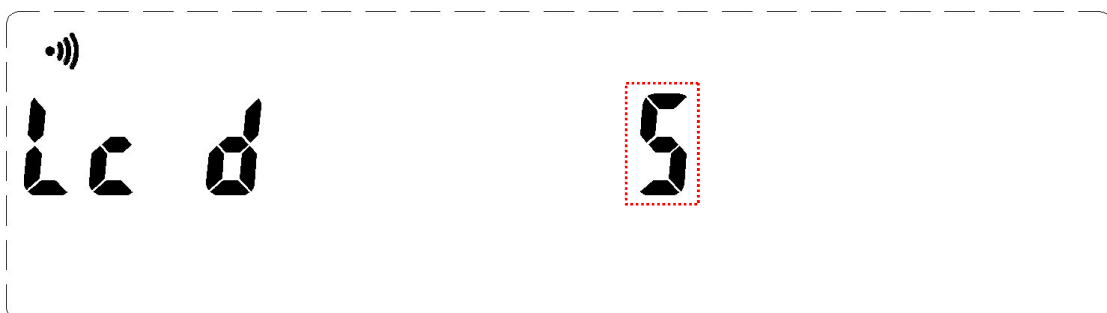
- k. 在充電最大電池溫度設置模式下，按下↑或↓鍵，可以設置充電最大電池溫度，設置完成按下 MODE 鍵進入電源輸入電壓值設置模式。（設置範圍：20°C~80°C，預設值為 80°C。）



- l. 在電源輸入電壓值設置模式下，按下↑或↓鍵，可以設置電源輸入電壓值，設置完成按下 MODE 鍵進入顯示幕亮度設置模式。（設置範圍：11.0V~15.0V，預設值為 12.0V。）



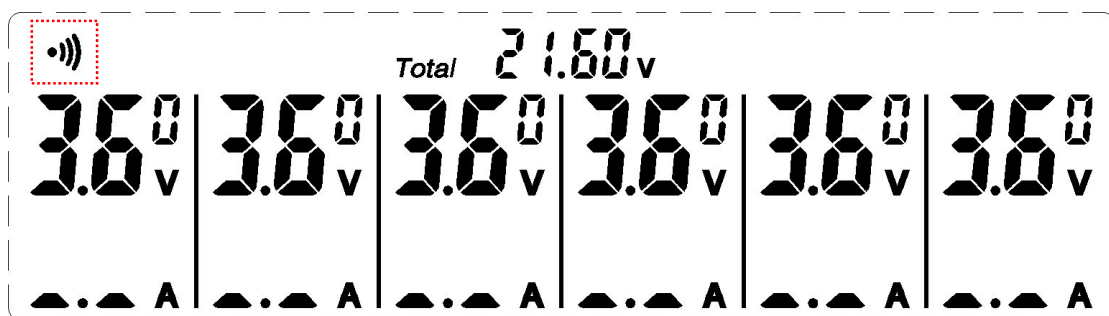
- m. 在顯示幕亮度設置模式下，按下↑或↓鍵，可以設置顯示幕亮度，設置完成按下 MODE 鍵進入顯示幕背光關閉時間設置模式。（設置範圍：0~5，預設值為 5。）



- n. 在顯示幕背光關閉時間設置模式下，按下↑或↓鍵，可以設置顯示幕背光關閉時間，設置完成按下 MODE 鍵返回標準模式。（設置範圍：--- ~ 0:05~5:00，---表示一直常開顯示幕背光，預設值為：0:30，單位為：秒。）



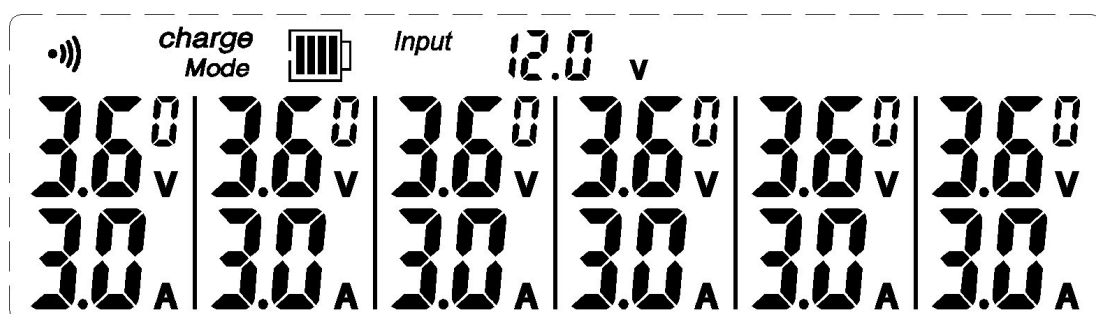
- o. 在任何設置模式下，按下 MUTE 鍵可實現關閉或開啟按鍵提示音和蜂鳴報警音。聲音圖示顯示時為開啟狀態，否則為關閉狀態。



3. 電池充電

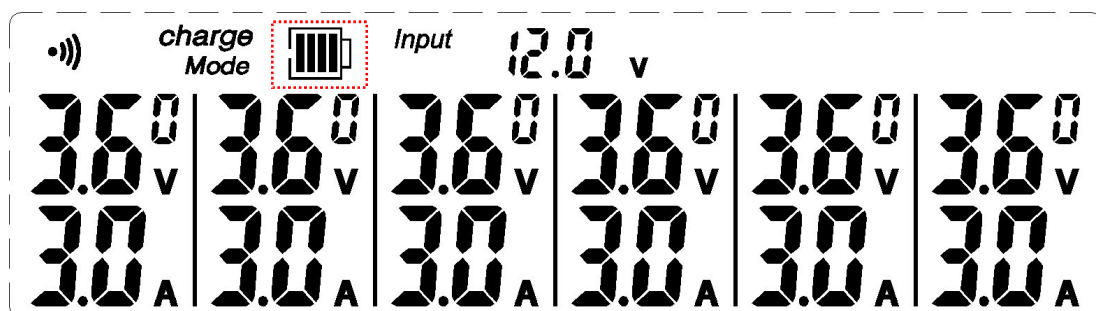
a. 標準充電：

在標準模式下，接入電池到充電器的充電埠，短按充電快捷鍵，則進入到充電模式。



b. 快速充電：

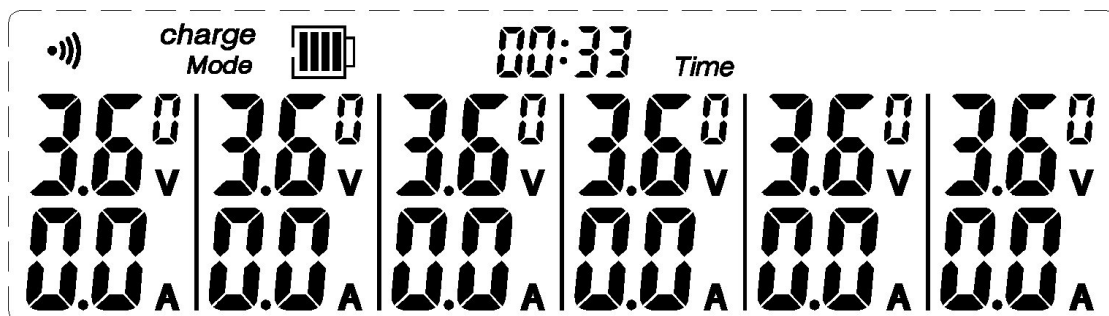
在標準模式下，接入電池到充電器的充電埠，長按充電快捷鍵 3 秒，則進入到快速充電模式，此時蜂鳴器會長鳴一次，以提示此時進入的是快速充電模式。快速充電模式與正常的充電模式，在動態的電池圖示上會有區別，快速充電模式下電池圖示閃動的會更快。



(注：快速充電模式適用於：電池性能較差導致充電電流很小，或需要快速充電的情況。)

c. 充電暫停：

在充電過程中短按充電功能鍵，可暫停對電池進行充電。此時充電圖示會閃爍顯示，表示充電為暫停狀態。

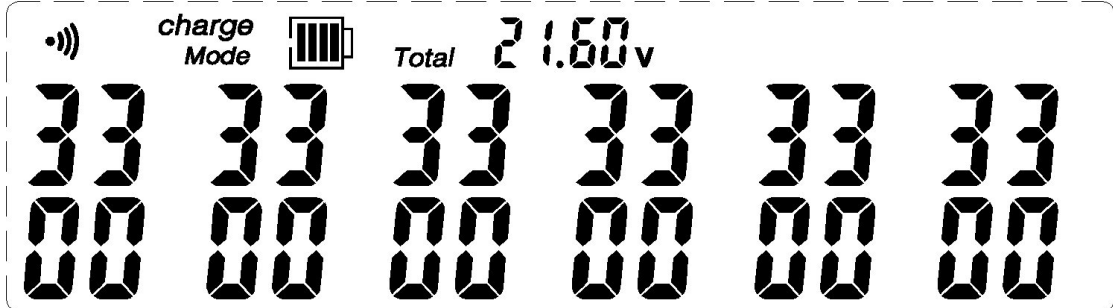


d. 充電電量

在充電過程中，短按平衡功能鍵或放電功能鍵進入充入到電池的電量顯示，單位為：mAh，如需返回到充電電壓電流顯示介面，需再次短按平衡功能鍵或放電功能鍵。

下圖顯示為：3300mAh。

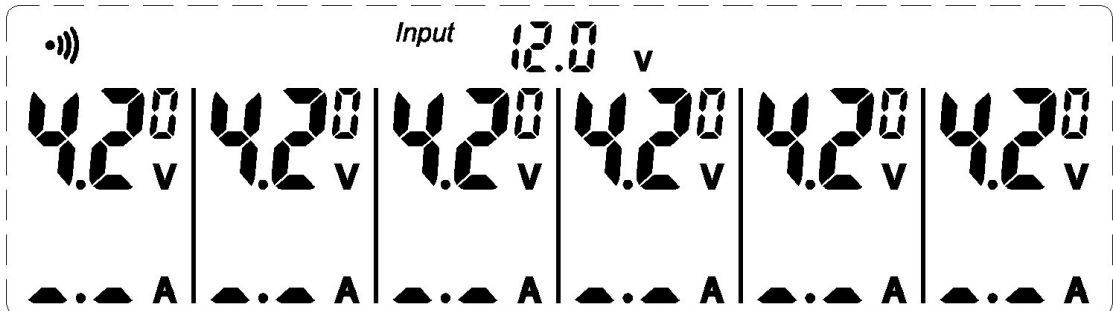
(在充電電量顯示模式下，10 秒後系統會自動返回到充電電壓電流顯示模式。)



e. 退出充電

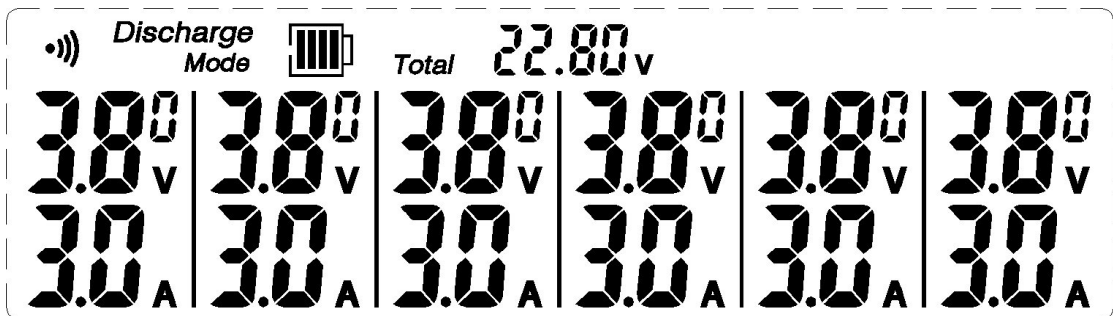
在充電過程中，短按返回鍵（ESC）即可退出充電模式返回到標準模式。

電池充電結束後，系統也回自動返回到標準模式。

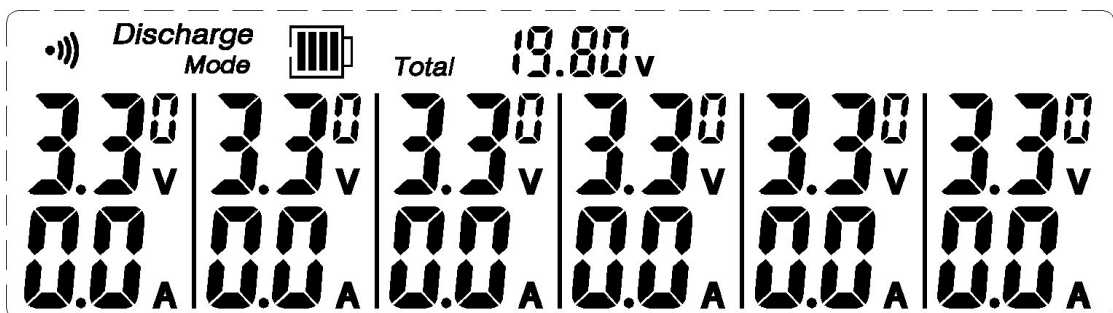


4. 電池放電

a. 短按放電功能鍵開始對電池進行放電，放電過程中短按返回鍵（ESC）即可退出放電模式，返回到標準模式。

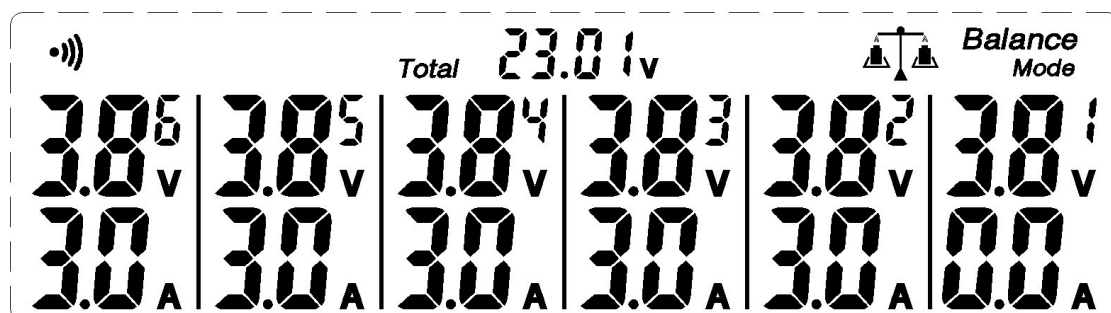


b. 放電完成後顯示如下：



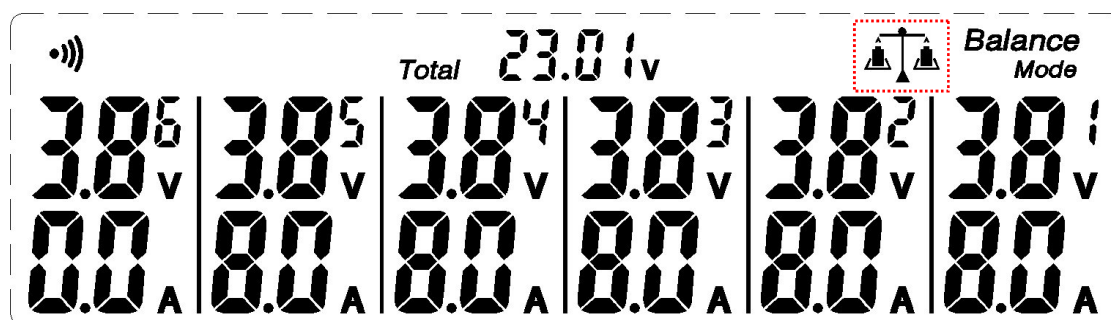
5. 電池平衡

- a. 在標準模式下，接入需要平衡電壓的電池到充電器，短按平衡功能鍵開始對電池進行電壓平衡操作。



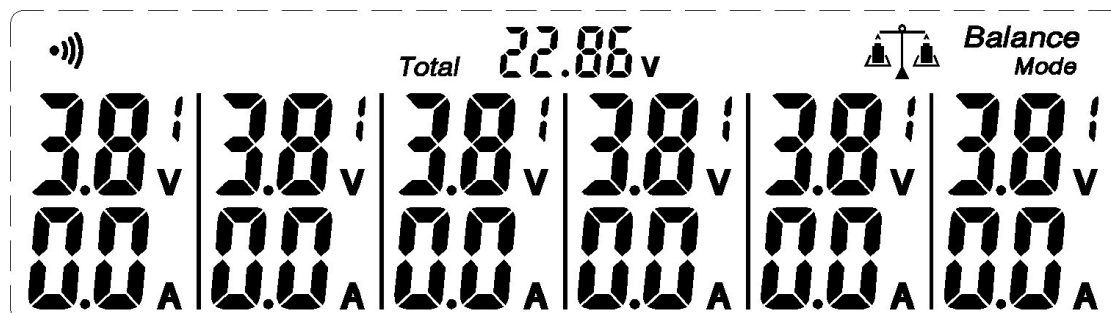
說明：此平衡模式最大平衡電流為 3.0A，該模式下將以電池組中最低電池電壓為基準，將高於基準的電池電壓以放電的形式來平衡電池組。

- b. 在標準模式下，接入需要平衡電壓的電池到充電器，長按平衡快速鍵 3 秒，則進入到快速平衡模式，此時蜂鳴器會長鳴一次，以提示此時進入的是快速平衡模式。快速平衡模式與正常的平衡模式，在動態的平衡圖示上會有區別，快速平衡模式下平衡圖示閃動的會更快。

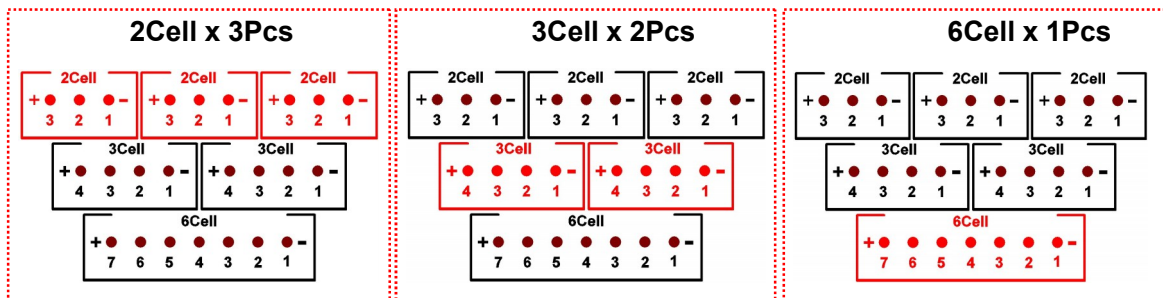


說明：此快速平衡模式最大平衡電流為 8.0A，該模式下將以電池組中最高電池電壓為基準，將低於基準的電池電壓以補充電量的形式來平衡電池組。

- c. 在任一平衡模式中短按返回鍵（ESC）即可退出平衡模式，返回到標準模式。
平衡完成後顯示如下：



6. 充電器電池介面示意圖：

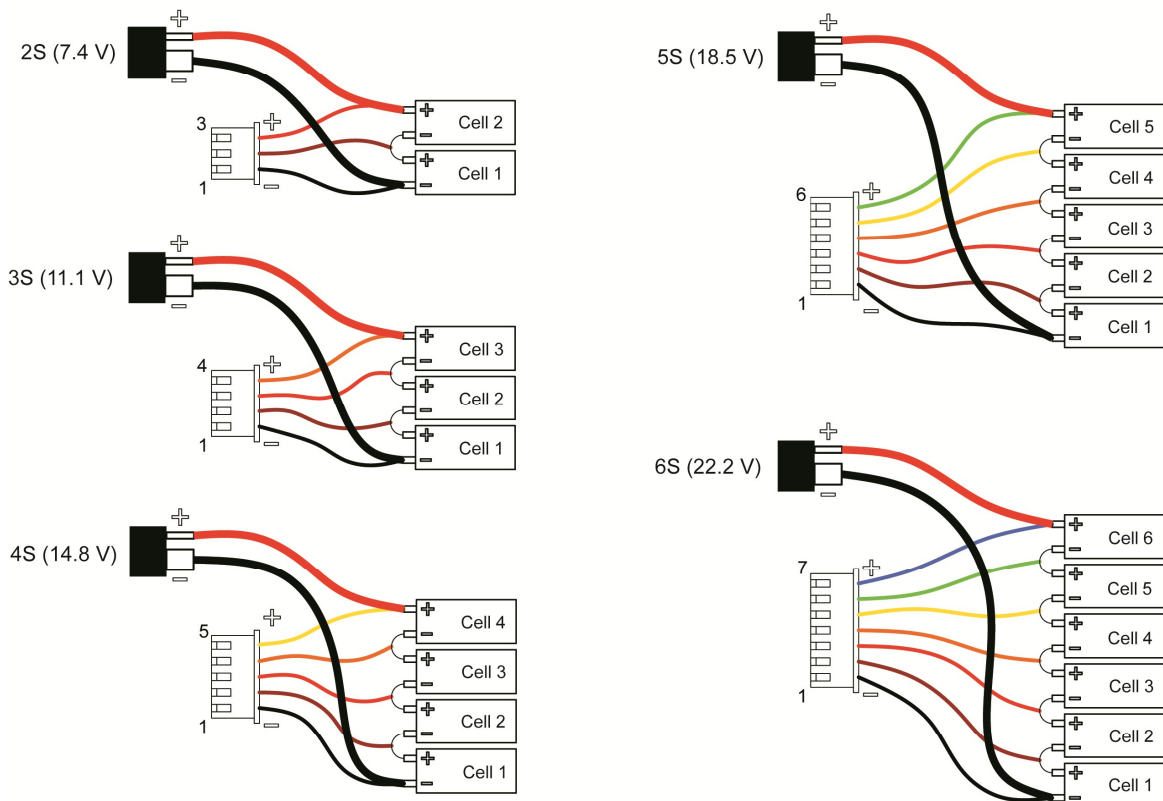


*特別提醒：一次最多只可接入 3 塊 2Cell 電池組或 2 塊 3Cell 電池組或 1 塊 6Cell 電池組，否則會損壞充電器和電池組。

1Cell；4Cell；5Cell 電池組請直接插入 6Cell 介面使用，並請注意正負極。

7. 鋰電池組 1Cell~6Cell 介面示意圖：

Harness Wiring For Lithium Polymer nominal Packs



**** Warning : Connector pin #1 must be “Negative” (Ground) !!**