

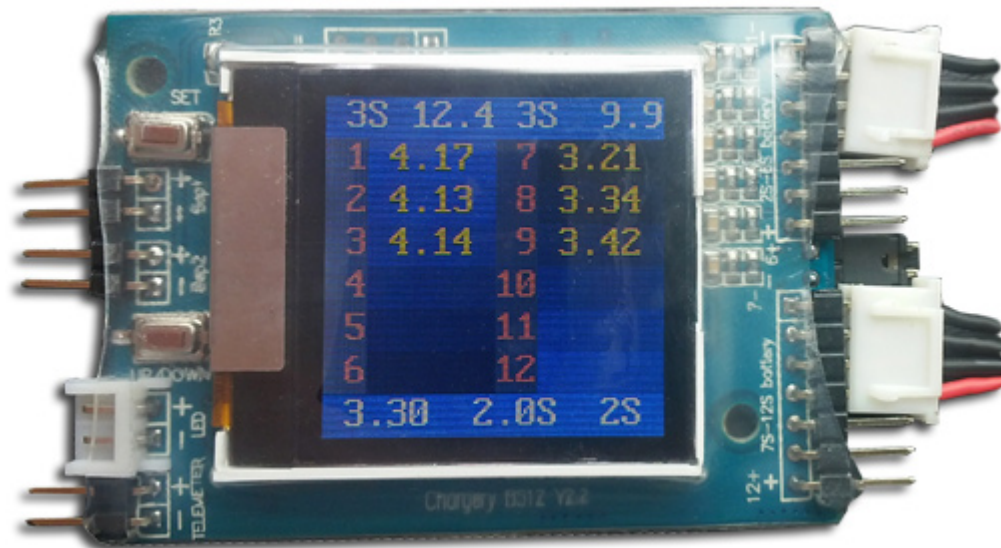


CHARGERY

## Operating Instructions

# CHARGERY BS12 v2.3

Microprocessor controlled high performance **Monitor / Reader / Saver / Watcher** for 2S~12S LiPo & LiFe battery packs.



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Chargery Battery Saver BS12 is the first up to 12S LiPo & LiFe battery saver with TFT color LCD applied to helicopter; High light red LED and two loud beepers (100Db min.) make sure your flight safety. The warning voltage, delay time and warning time can be setup by pressing easily the button.

Large TFT colorful LCD can display each cell voltage and total voltage. During battery discharge, it can sound and LED flash alternately while any cell voltage under setup value, prevent any cell from over discharged. Even you can check the lowest cell voltage after your helicopter land off, so you can find the worst cell---the lowest voltage cell.

**V2.1 Update note**

Add a telemeter port to connect to the receiver, when any warning events happen, the transmitter can sense the warning events.

When start warning the telemeter port will output 5V, if no warning, it will be 0V.

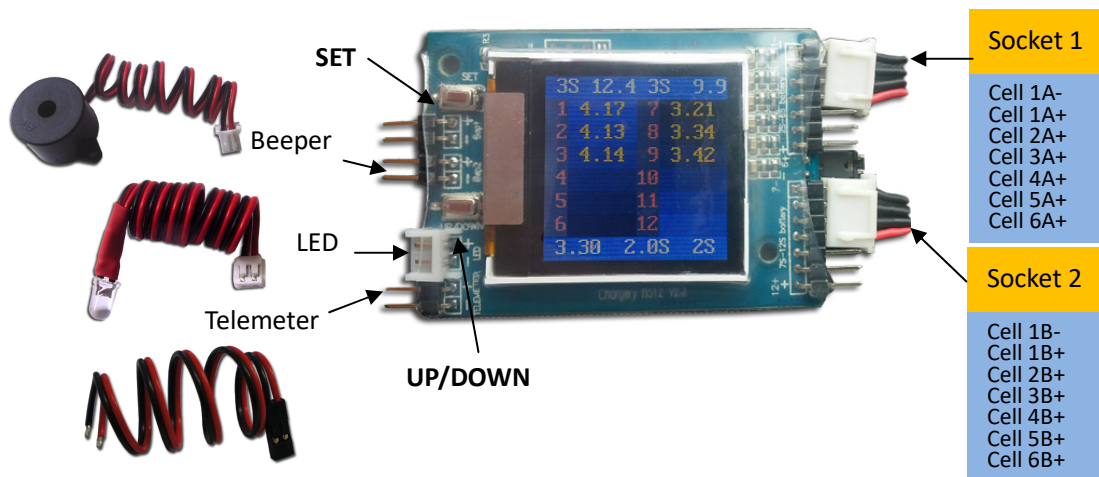
**V2.2 update note**

Add a jump port to connect the socket 1 and socket 2, it is for two packs without any connection. If two packs connected in series or parallel by discharge cable, the jump port must be open.

**V2.3 update note**

Loudly Beeper, 100dB min. at 12V

TELEMETER port renamed as BPG (Battery Pack Good)



**New features**

- From BS12 V2.0, two packs can be connected in series or in parallel, the device can identify the connection automatically and monitor each cell voltage accurately.
- Over charge voltage can be programmed from 3.00~4.30V
- Over discharge voltage can be programmed from 2.00~4.00V
- Wait time can be programmed from 0.0~20S
- Alarm time can be programmed from 1.0~60s
- LCD Back-light time can be programmed from 1min, 5min, 10min, 20min and always on.
- BS12 can record the lowest voltage of each cell including total pack voltage during flight, after your helicopter land off, you can press **UP/DOWN** to display these voltage (**cell number background color change, and cell voltage displayed in RED text**), press the button again display real voltage.
- Beeper sound and LED flash alarm while any cell over charged or over discharged.
- At any time, you can press **SET** button shortly turn off the display and press again resume.
- While alarming, press **SET** button shortly turn off alarm at any time.

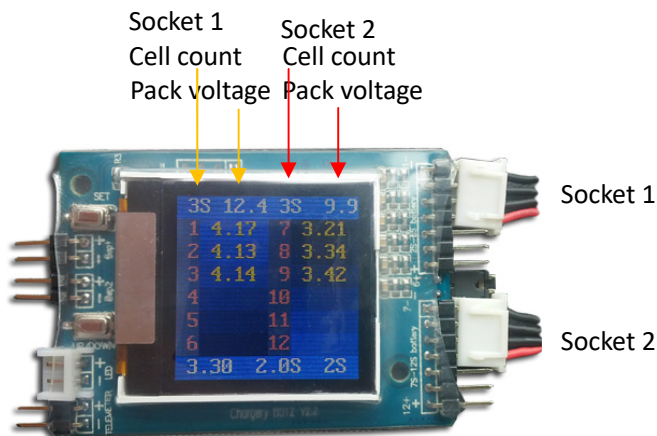
**Operating guideline**

1. Connect the battery to BS12, keep the polarity correct. The detailed connection diagram is as the following figure 1, figure 2 and figure 3.
2. The Device will initialize the beeper and LED, beeper sounds once time, warning LED flash once time.
3. 2 seconds later, the BS12 will display the cell count, total voltage on the top line, and warning voltage, delay time, warning time on the bottom line from left to right. The middle area, each cell voltage is displayed. When any cell voltage reaches the dynamic lowest value, it is displayed in **RED** color, the lowest voltage will be updated with the value changes.
4. At any time, you can press **SET** button shortly turn off the display and press again resume. If the back-light time is always on, it is invalid.
5. While alarming, press **SET** button shortly turn off alarm at any time.

In flight, BS12 can alarm loudly and a large WARNING RED LED flash when any cell voltage under setup value till the cell voltage over warning voltage.

If the cell voltage is still under warning voltage, the unit will beep and flash repeat for the warning time.

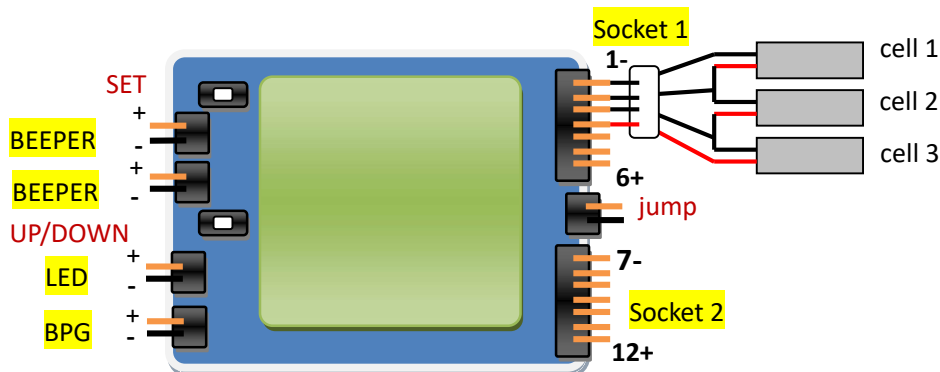
The unit includes reverse polarity detection, and 2.54mm pin distance balance connector for all kinds of battery.



**Connection Diagram**

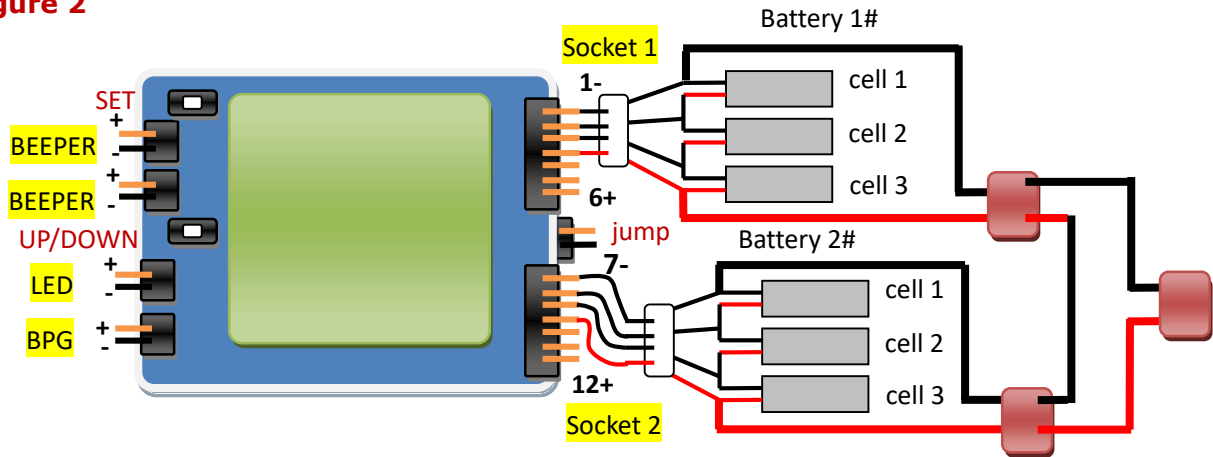
1. One 2S-6S battery can plug into the socket1 directly, 3S connections as following.

**Figure 1**



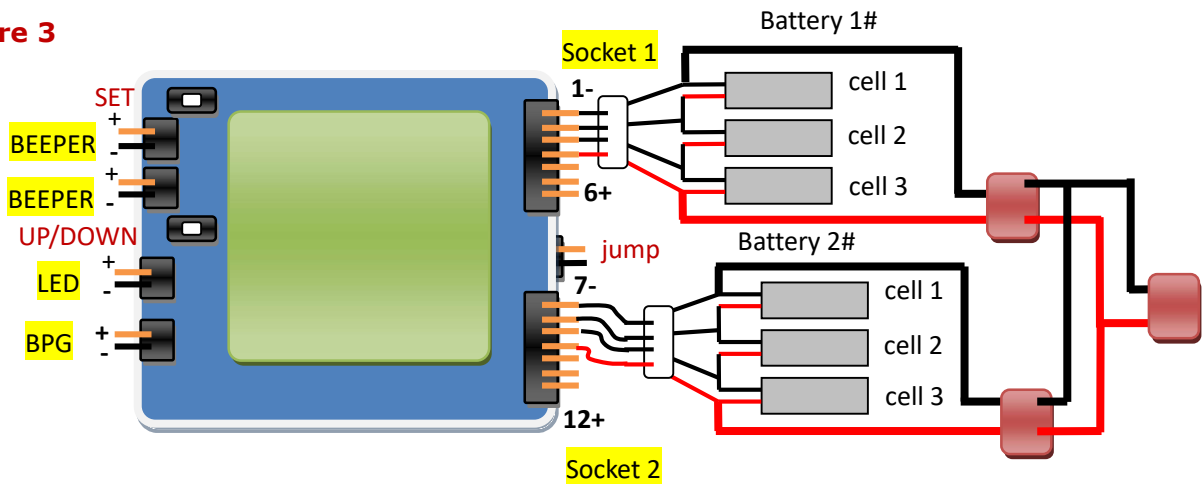
- For two battery packs connected in series as following, plug battery 1# into socket 1, and battery 2# into socket 2 separately. Take two 3s battery sample as following:

**Figure 2**



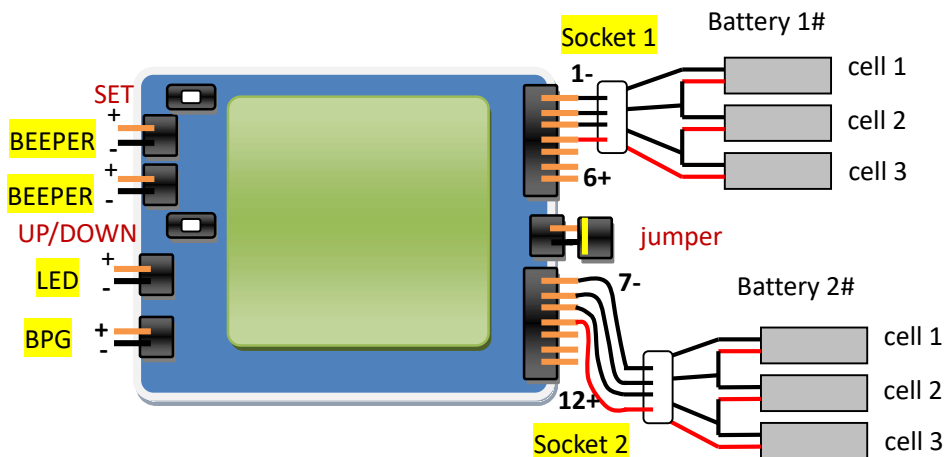
- For two battery packs connected in parallel as following, plug battery 1# into socket 1, and battery 2# into socket 2 separately. Take two 3s battery sample as following:

**Figure 3**



- For two separate battery packs without any connection, plug battery 1# into socket 1, battery 2# into socket 2 separately, and short circuit the jump port by the jumper. Take two 3s battery sample as following:

**Figure 4**



When two packs is connected in series or parallel or short circuit the jump port, you can connect any combo battery pack to socket 1 and socket 2 on condition that the total cell count less than 12, such as 6S+6S, 2S+6S, 5S+6S, 6S+3S, 6S+5S and so on.

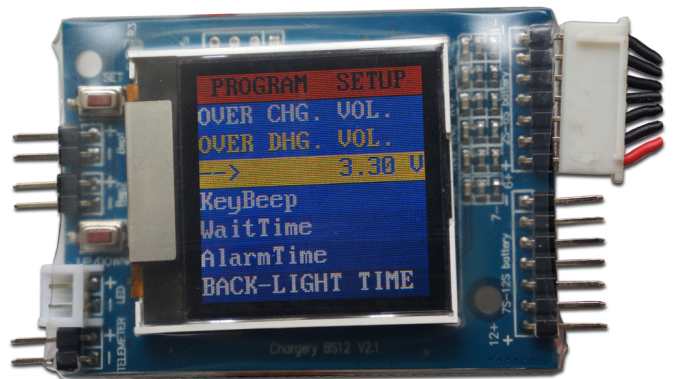
### Specifications:

- Battery range: 2S-12S LiPo & LiFe battery pack
- Over charge warning cell voltage: **3.00~4.30V** step 0.05V, default 4.25V
- Over discharge warning cell voltage: **2.00~4.00V** step 0.05V, default 3.30V
- Wait time when start to warn: **0.0S~20S**, step 0.5 second, default 0.5S
- Alarm time range: **1S~60S**, step 1 second, default 2S
- LCD Back-light time range: **1min, 5min, 10min, 20min** and **always on**, default 5min
- Accurate scope of the warning voltage: -20mV/+20mV
- Cell voltage display range: 0.50V~4.99V, NO display when under 0.50V
- Pins distance: 2.54mm
- Size: 62\*44.5\*6 ( L\*W\*T, mm)
- Weight: 30g
- Warning LED: 11000mCd, @ 2.0V, 20mA
- Two Warning beepers: 100db @ 12V and 10cm
- Package: transparent heat shrink tube

### Program setup

Before flight, you can enter into Program setup menu, and set up the parameter according to your need such as over charge voltage, LCD back-light time etc.

1. Connect 2S (LiPo 7.4V, LiFe 6.4V) or under 6S battery to the socket 1.
2. Press **SET** button for 3 seconds enter into Program Setup menu.
3. Press **UP/DOWN** button select the item, press **SET** shortly make the value flash, and press **UP / DOWN** change the value. Press **SET** button shortly confirm the change. After finish all setup, press **SET** for 3 seconds save change and quit the setup menu.
4. Over charge warning voltage range is **3.00~4.30V per cell**, step 0.05V, default 4.25V. During charge, when any cell voltage over the value, the unit will alarm.
5. Over discharge warning voltage range is **2.00~4.00V** step 0.05V, default 3.00V. During flight, when any cell voltage under the value, the unit will alarm.
6. Delay time when start to warn range is **0.0S~20S**, step 0.5 second, default 2.0S. *Delay time means the waiting time from cell voltage reach set up value to start alarming.*
7. Warning time range is **1S~60S**, step 1 second, default 2S.
8. LCD back-light time range is **1, 5, 10, 20min** and **always ON**, default 5min. when LCD back-light "ON" time reach setup value, it will turn off, and press any button to resume. If the back-light time is always on, it is invalid.
9. When quit setup mode, the device will remember all parameters till next change.





## Warranty and Service

Chargery Power Co., Ltd. as manufacture of R/C model power warrants its charger and saver, monitor etc. to be free of defects in material and workmanship. This warranty is effective for 12 months from date of purchase. If within the warranty period the customer is not satisfied with the products performance resulting from a manufacturing defect, the accessory will be replaced or repaired.

Your selling dealer is your first point of contact for warranty issues. Return postage costs are the responsibility of the user in all cases. Please submit copy of original receipt with the return.

Damage due to physical shock (dropping on the floor, etc.), inappropriate power supply (unstable output voltage and insufficient power, etc.), water, moisture, and humidity are specifically NOT covered by warranty.



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