

Watt and Voltage Meter Manual Instruction

Thanks for purchasing RC Timer Watts and Voltage Meter, please read this manual carefully before use it. In that we have no control over the correct use, installation, application, or maintenance of our products, no liability shall be assumed nor accepted for any damages, losses or costs resulting from the use of the product. Any claims arising from the operating, failure or malfunctioning etc. will be denied. We assume no liability for personal injury, property damage or consequential damages resulting from our product or our workmanship. As far as is legally permitted, the obligation to compensation is limited to the invoice amount of the affected product.

Product features

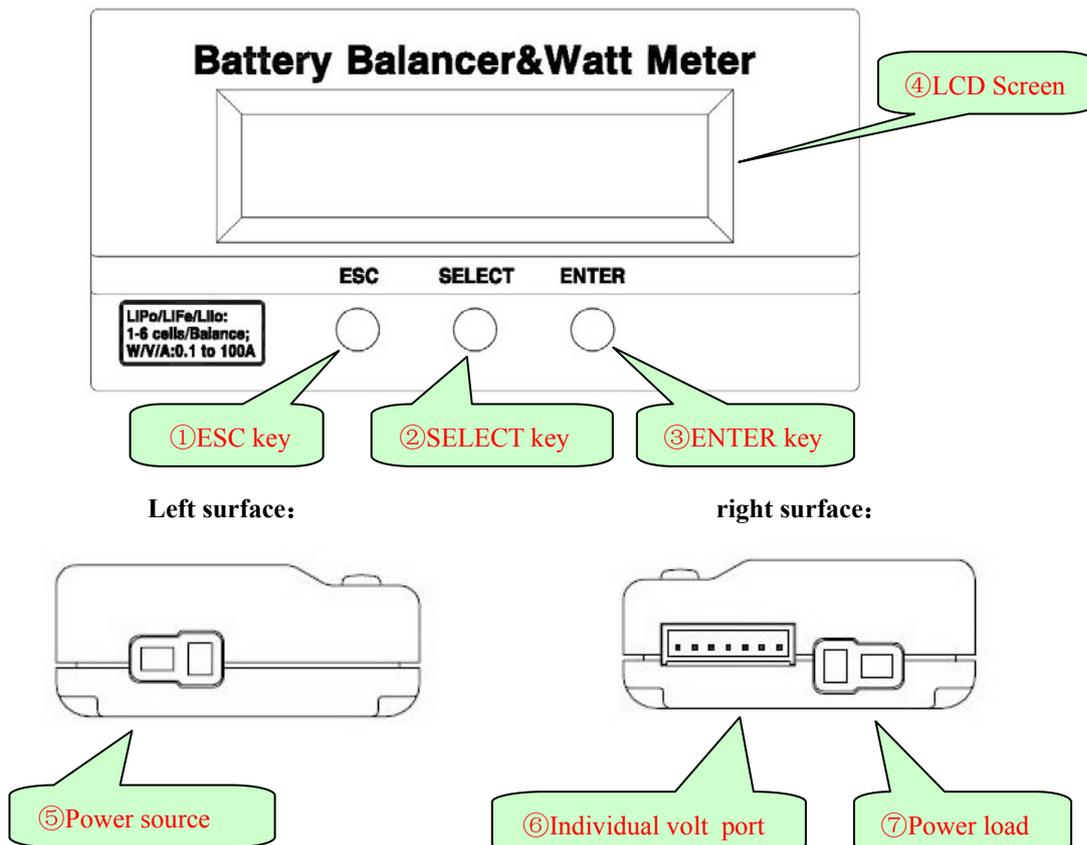
1. Adopt 3 function keys and 1602 lightgreen LCD display, outward appearance decent ,simple to use.
2. Watt Meter program. RC Timer Multi Meter can measure load current (eg: power system) ,consumption current and Watt.
3. Battery checker. RC Timer Multi Meter can measure voltage of every single cell in the Lipo battery pack, and the residual voltage of the battery pack. This will show on the LCD screen with digitals and lines. It will give alarm when battery pack has irregular voltages, or the single battery cell shows imbalance voltages.
4. Integrated self-balancer. RC Timer Multi Meter can balance every single cell with the same capacity,

Specification

1. Max voltage :60V,
2. Max current: 100A
3. Battery type. LiPo, LiFe, LiLo.
4. Voltage:2-6S, Li-XX
5. Current consumption: 20mA (Battery checker)
6. Dimension: 105x50x20mm

Introduction

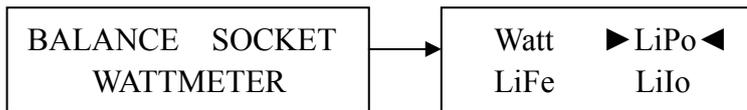
Front:



- ① ESC key: backspacer
- ② SELECT key: option
- ③ ENTER key: enter
- ④ LCD display: display function or measure values
- ⑤ Power source port: Connect DC power (watt measure), Input volt:7~60V
- ⑥ Battery balance port: connect to 7PIN Li-xx battery balance port, measure and test/single cell volts of battery pack (3~6PIN please connect to JST adapter)
- ⑦ Power load port: Connect to the measure loading (e.g: brushless motor power system), current, watt ect.

Operation Manual

When connect to battery pack/power source, the Meter make a sound “du”, the screen show the name of Meter, and it goes to menu after 2 seconds. (Picture 1)



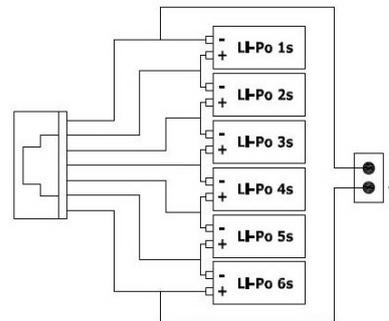
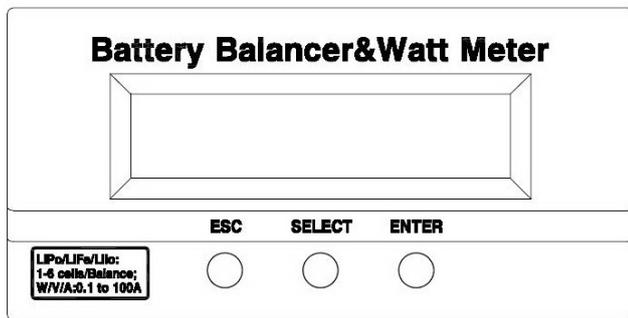
(Picture 1)

Battery checker and Self-balancing function

Battery checker: This can use to check the residual battery capacity and the voltage of every single cells.

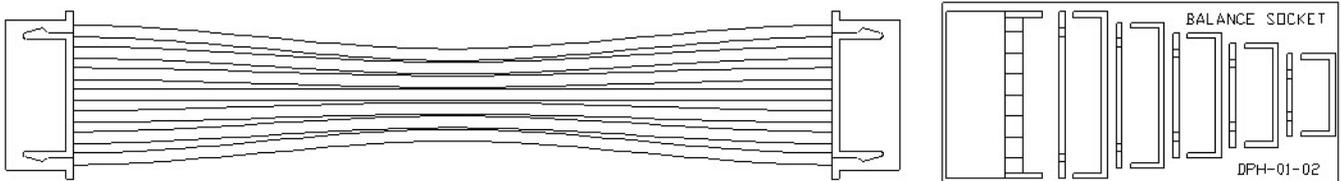
Self-balance program: This can balance the lowest voltage to the average voltage.

When you use the function, please put the balance connector to the right side of the Meter. (battery balance port) (Picture 2)



(Picture 2)

Note: If you need to measure/balance 2~5S Li-xx battery pack, please use the assorted battery charge adapter (Picture 3)Put the adapter to Meter,and then connect the measure/balance battery pack to the corresponding port.



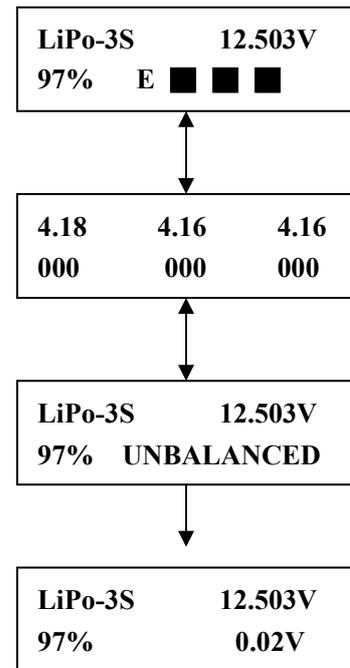
(Picture 3)

1. Battery checker

- Select the program by pressing "SELECT" button to suit the type of battery being measured. (example LiPo battery) ,and press "enter" button to go to the next screen: there are two programs which are LiPo check and LiPo balance. Select "LiPo check" program by using "SELECT" button then press "ENTER" to program..

- It shows the type of battery and number of cell count at upper right, And it displays the residual battery capacity at percentage and visual graph.
- Press **【ENTER】** key it can show every single cells volts.

Note: If the voltages are unbalance, it warns and shows the voltages difference from the highest to the lowest one. You need to let them balanced, or check the cells and cables carefully.



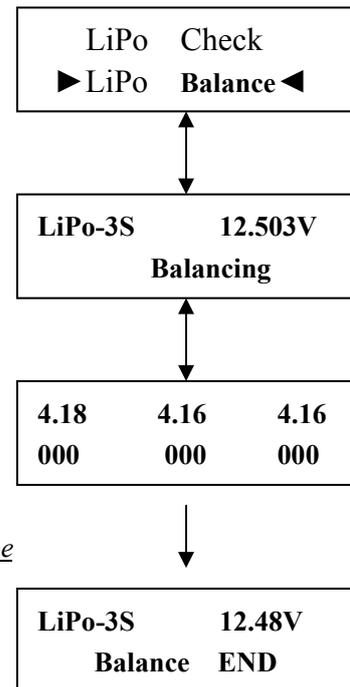
2. Self-balance program

- Select the program by pressing "SELECT" button to suit the type of battery being measured. (example LiPo battery) ,and press "enter" button to go to the next screen: there are two programs which are LiPo check and LiPo balance.

-Select "LiPo check" program by using "SELECT" button then press "ENTER" to program.

- Press **【ENTER】** key again, it shows the volts of very singlecell.
- When the balancing job is completed, Meter will make 20 sounds like "du", it means balancing job finished. The screen shows "Balance END".

Note: To protect the battery from over-discharg, there are mini mumvoltages to be Balanced for each type of lithium batteries, if any individual voltage is lower than the limit, there shows an error message. LiPo/LiIo:3.0V, LiFe:2.0V.

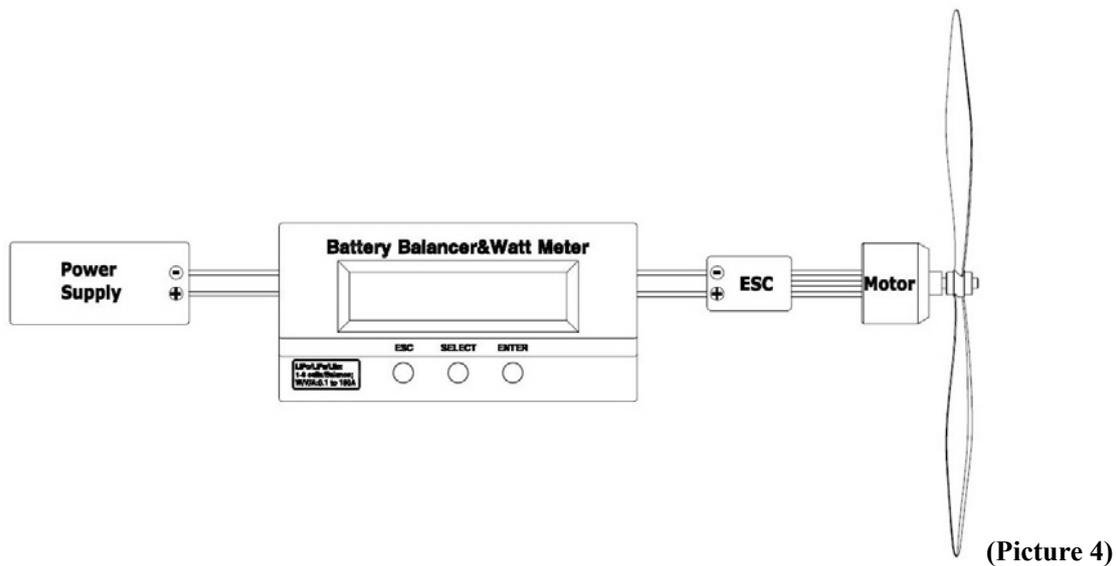


Tips: You can set the "du" sound "OFF" or "ON" by press **【SELECT】 button for 3 seconds, or you Can set it "ON" by doing the job again. The default is "ON".**

3. Watt meter program

The program can measure the electronic current on your power system, current consuming and watt.

Connection: Connect the power to the Meter(Power source port),then connect the measured system to the Meter power source port.(Picture 4)



(Picture 4)

- Select the “watt” program by pressing **【SELECT】** button,
- and press **【ENTER】** button to start to measure.

As you start to run the motor, it shows the power consumptions in real time. They are current, input voltage, wattage and current. (Picture 5) .

WAT	12.6A	11.81V
	148.2W	12.110AH

(Picture 5)

Note: When you enter the watt-Meter mode, you can calibrate all the values to zero by pres **【SELECT】** button for more than 3 seconds.

Warning: *Be aware of rotating propeller, when you check the motor with propeller, for maximum safety,hold a motor on a test bench tightly, and wear a safety eye protection and hand gloves.*

Error Message

Battery check program

“UNBALANCED”–There are voltage difference more than 0.05V between the highest and lowest voltages of individual cells.

“HIGH VOL” –The voltage of any peculiarcell is higher than the safe value-
LiPo>4.24V, LiFe>3.65V, LiIo>4.14V.

“LOW VOL” –The voltage of any peculiarcell is lower than the minimum safe value-
LiPo<3.00V, LiFe<2.5V, LiIo<3.00V.

Self-balance mode

“CELL LOW VOL” –The voltage of cell is too low.

“CELL HIGH VOL”– The voltage of cell is too low.

“CELL CONNECT” –There are bad connections on cable or connectors.

Lithium battery notation

	Nominal volts	Max charge volts	Minimum discharge volts
LiIo	3.6V/cell	4.1V/cell	2.9V/cell or higher
LiPo	3.7V/cell	4.2V/cell	3.0V/cell or higher
LiFe	3.3V/cell	3.6V/cell	2.0V/cell or higher