



Battery Balancer and Watt Meter Instruction Manual

Thank you for purchasing Overlander Batteries Watt and Voltage Meter, please read this manual carefully before using the Watt Meter.

Product features

This unit is a simple to use Watt Meter with 3 function keys, black on green LCD display, and programming to measure several important battery parameters.

The Overlander Batteries Watt meter can measure real time current, voltage, and wattage, plus the accumulative energy in amp hours.

When used as a battery checker, the Overlander Batteries Watt Meter can measure voltage of each individual cell in the Lipo, LiFe, or Lilo battery pack. It will also estimate the residual capacity of the pack shown as an approximate percentage and as a bar chart. It will give an audio alarm when a pack has unbalanced cells.

The Overlander Batteries Watt Meter can operate as an Integrated self-balancer and can balance each single cell to the same voltage.

Specification

Max voltage :60V,

Max current: 100A

Battery type. LiPo, LiFe, Lilo.

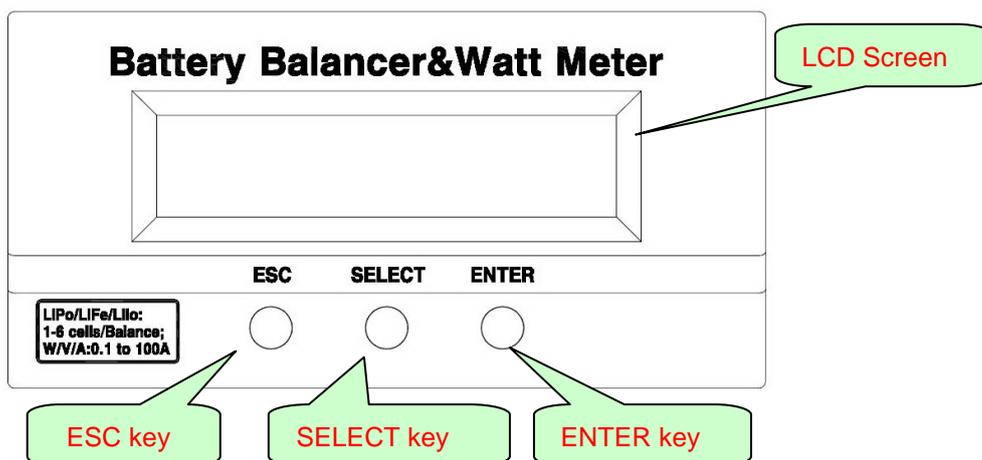
Cell count :2-6S, Li-XX

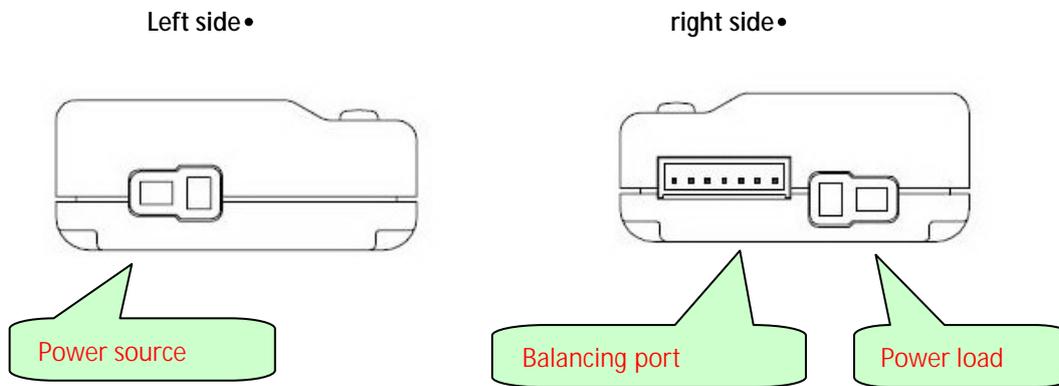
Current consumption: 20mA • Battery checker/balancer •

Dimension: 105x50x20mm

Introduction

Front:

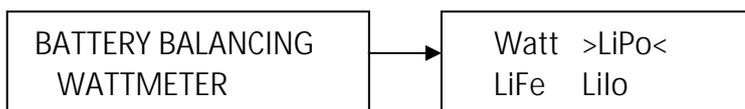




- ESC key • previous display
- SELECT key • change options
- ENTER key • enter
- LCD display • display function or measure values
- Power source port • Connect battery pack power leads • watt meter operation • • Input volt : 7 • 60V
- Battery balancing port • connect to Li-xx battery balance lead via 7-pin JST plug, check/balance battery individual cell voltages • 3 • 6 pin please connect to JST adapter •
- Power load port • Connect loading system (e.g: brushless motor power system), measure voltage, current, watts, and Amp hours.

Operation instructions

When connected to the battery pack (either by the power source socket or by the battery balancing port), the unit gives an audio confirmation beep and the screen shows the unit name. After 2 seconds the screen switches to the initial menu • **Picture 1**).



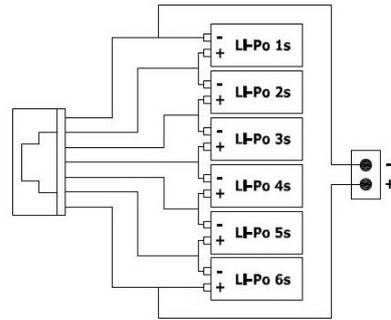
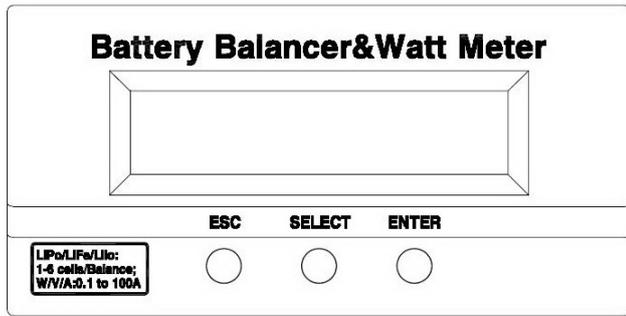
(Picture 1)

Battery checker and Self-balancing function

Battery checker: This can provide the residual battery capacity and the voltage of each individual cell.

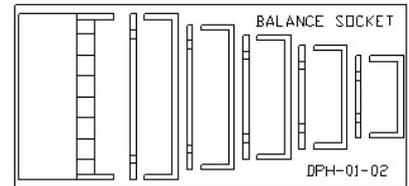
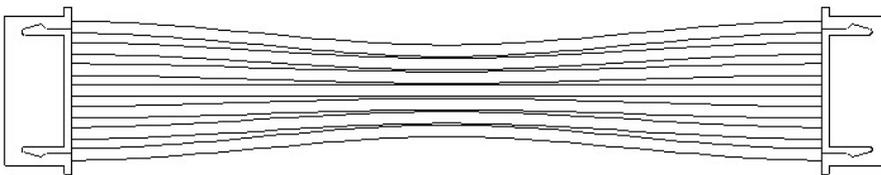
Self-balance program: This can balance the cells to a common voltage.

When you use this function, please connect the battery balance connector to the right side of the Meter (battery balance port) **(Picture 2 – 6S pack, 7 pin connector)**



(Picture 2)

Note • If you need to measure/balance 2 to 5S Li-xx battery pack, please use the charge adapter. (Picture 3) Plug the adapter into the balancing port, and then connect the battery pack to be measured/balanced to the appropriate socket.



(Picture 3)

1. Battery checker

Select the program by pressing the SELECT button to match the type of battery being tested (e.g. LiPo battery), and press ENTER button to go to the next screen. There are two programs available, LiPo check and LiPo balance. Select "LiPo check" program by using SELECT button then press ENTER to start program..

The screen shows the type of battery and number of cells at upper left, and it displays the residual battery capacity as a percentage and bar graph. Press ENTER key to show the single cells voltages.

Note: If the voltages are unbalanced, the unit gives an audio warning and shows the voltage differences from the highest to the lowest one. You then need to balance the pack, checking the cells and cables carefully.

LiPo-3S 12.503V
97% E . . .

4.18 4.16 4.16
000 000 000

LiPo-3S 12.503V
97% UNBALANCED

LiPo-3S 12.503V
97% 0.02V

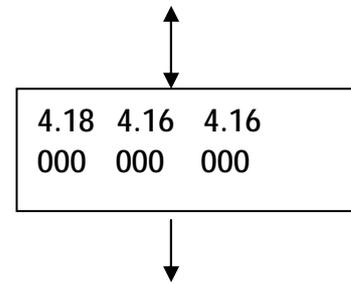
LiPo Check
>LiPo Balance<

LiPo-3S 12.503V
Balancing

2. Self-balance program

Select the program by pressing the SELECT button to match the type of battery being tested • e.g. LiPo battery), and press ENTER button to go to the next screen. There are two programs available, LiPo check and LiPo balance. Select "LiPo balance" program by using SELECT button then press ENTER to start program.

Press ENTER key again to show the single cell voltages.
 When balancing is completed, the unit will give a 20 beep indication
 That balancing is finished. The screen shows "Balance END".



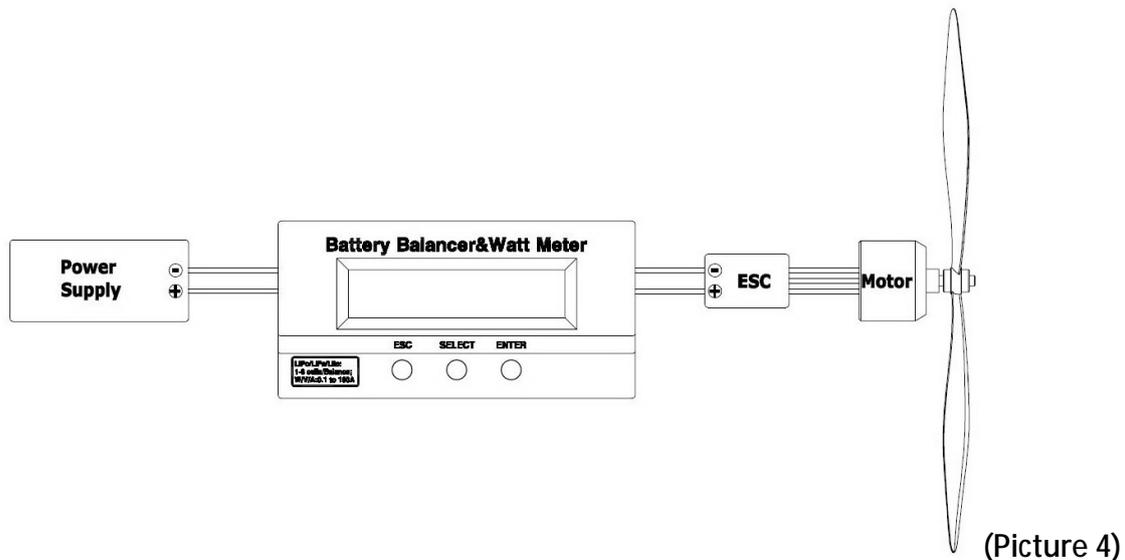
Note • To protect the battery from over-discharge the battery must be disconnected from the unit once the balancing is complete (20 beeps). Failure to do so will allow the battery to continue a slow discharge and may result in permanent damage to the battery.

Tips • You can set the audio Beep to "OFF" or "ON" by pressing the SELECT button for 3 seconds.
 The default is "ON".

3.Watt meter program

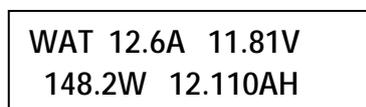
This program can measure the electronic real time current, voltage, and wattage of your power system, plus the accumulative energy used in Amp hours.

Procedure: Connect the power supply/battery to the unit (Power source port), then connect the load (e.g.ESC and motor/propeller) to the Power load port.(Picture 4)



Select the "Watt" program by pressing the SELECT button, and press the ENTER button to start the process.

As the ESC is operated to run the motor the screen shows the power parameters in real time. These are current, input voltage, wattage and amp hours. • **Picture 5).**



• **Picture 5** •

Note • When you enter the Watt meter mode you can calibrate all the values to zero by pressing the SELECT button for more than 3 seconds.

Warning • **If the load used is a motor fitted with a propellor the motor must be completely secured to the test bench and for maximum safety, wear eye protection and safety gloves. Always be aware of the danger of a propeller rotating at high speed.**

Note.

The arrangement of the connections on this unit means that a battery could be connected through both the power source socket and the balancing lead simultaneously, much as you would for a charger with a built-in balancer. Although the manual does not specifically advise against this, it is very misleading to do so as one set of readings conflicts with the other set. The pack voltage reading for the watt meter mode is under load whilst that for the battery check mode is not, resulting in different values, and the capacity reading is similarly affected. The two modes are intended to measure battery parameters in very different and separate situations and the modes are therefore incompatible. Attempting to combine them by connecting in this way would logically cause problems.

Error Messages

Battery check program

"UNBALANCED" –There are voltage differences of more than 0.05V between the highest and lowest voltages of individual cells.

"HIGH VOL" –The voltage of any particular cell is higher than the maximum safe value

LiPo • 4.24V • LiFe • 3.65V • Lilo • 4.14V •

"LOW VOL" –The voltage of any particular cell is lower than the minimum safe value-

LiPo • 3.00V • LiFe • 2.5V • Lilo • 3.00V •

Self-balance mode

"CELL LOW VOL" –The voltage of a cell is too low.

"CELL HIGH VOL" – The voltage of a cell is too high.

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

Lithium battery notation

	Nominal volts	Max charge volts	Minimum discharge volts
Lilo	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

DISCLAIMER

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