

1. SAFETY PRECAUTIONS

CAUTION: Shorting a rechargeable battery or Watt Meter connected to a rechargeable battery can supply huge currents, causing fire, explosion, personal injury and damage to equipment. Ensure that all wiring and connections are rated to handle the input or output current and are properly assembled for each application.

1.1. Input Voltage & Current Handling Limitations

The Watt Meter is designed to be safe in systems using less than 60V and carrying currents upto 130A. CAUTION: Exceeding these limits will damage the Watt Meter and may cause personal injury.

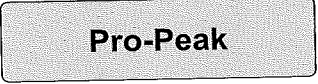
2. WIRING CONNECTIONS & APPLYING POWER

Warning: Loose connections can cause component damage! Only switch power between meter & LOAD. The Red SOURCE wire goes to Positive (+) on the battery, or other device terminals and black to Negative (-). The user is responsible for attaching connectors rated to handle the voltage and current expected in the user's application. Qualified individuals should check any high current connections and verify that there are no exposed wires or connectors that may short circuit before connecting a battery or power source to the Watt Meter. By connecting an auxiliary battery (e.g. a receiver battery) of 4.8 - 6.0V to the SOURCE 3-pin connector, the Watt Meter can measure down to 0V.

3. DISPLAY SCREEN

3.1. Startup Screen

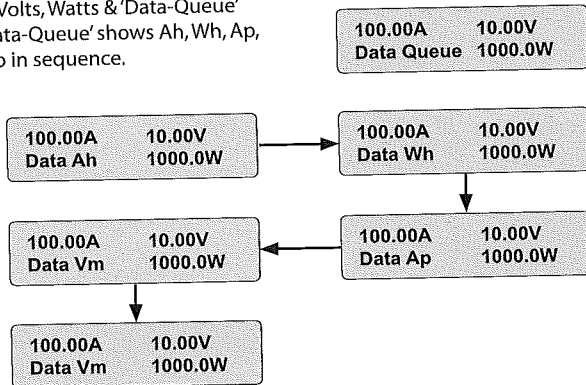
Each time power is applied across the Watt Meter Leads (or auxiliary power connector) a startup screen with logo is briefly displayed and peaks, minimums, Ah & Wh are reset to Zero (0). The the display changes to the measurement screen.



3.2. Measurement Screen

The measurement screen continuously displays Amps, Volts and Watts. All other measured values are presented sequentially every two seconds in the 'Data-Queue' position of the display. Data values are identified by their units (Ah, Wh, Ap, Vm, Wp). All measurement screen values are updated every 0.4 seconds.

The Measurement Screen layout:
Amps, Volts, Watts & 'Data-Queue'
The 'Data-Queue' shows Ah, Wh, Ap, Vm, Wp in sequence.



3.2.1. (Current) Amps & Peak Amps A, Ap

Only current from the SOURCE to LOAD is measured. The Amp value displayed is the average current over the last screen update interval. The Peak Amp value (AP) displayed is the maximum current drawn from the LOAD side since the meters startup. Peaks lasting only a fraction of a second, can be captured. Supplying the auxiliary power with a voltage greater than the meter is measuring removes the meter's operation current from the measurements. To reduce meter heating, measure currents over 65 Amps for reduced time and remember to use connectors which can handle a large current.

3.2.2. (Voltage) Volts & Maximum Volts V, Wm

The displayed Volt value is the average voltage over the last screen update interval. The displayed Minimum Volt value (Vm) is the minimum voltage (or 'sag') measured on the SOURCE side, since the startup screen ended. The Volt value is measured on the SOURCE side.

3.2.3. (Energy) Watt - hours Wh

The displayed value is the total energy delivered in Watt-hours since the startup screen ended. It is measured on the LOAD side. For accurate results, be careful not to interrupt the SOURCE connection to the Watt Meter during and energy measurement.

3.2.4. (Charge) Amp - hours, Ah

The displayed value is the total charge in Amp - hours ($\times 1000 = \text{mAh}$) delivered since the startup screen ended. It is measured on the LOAD side. For accurate results, be careful not to interrupt the SOURCE connection to the Watt Meter during a charge measurement.

3.2.5. (Power) Watts & Peak Watts W, Wp

The displayed value is the average power delivered in watts (= Volts \times Amps) over the last screen update interval. The displayed Peak Watts value (Wp) is the maximum power drawn on the LOAD side, since the startup screen ended. Watt values are measured on the LOAD side.

4. BUSING Watt Meter

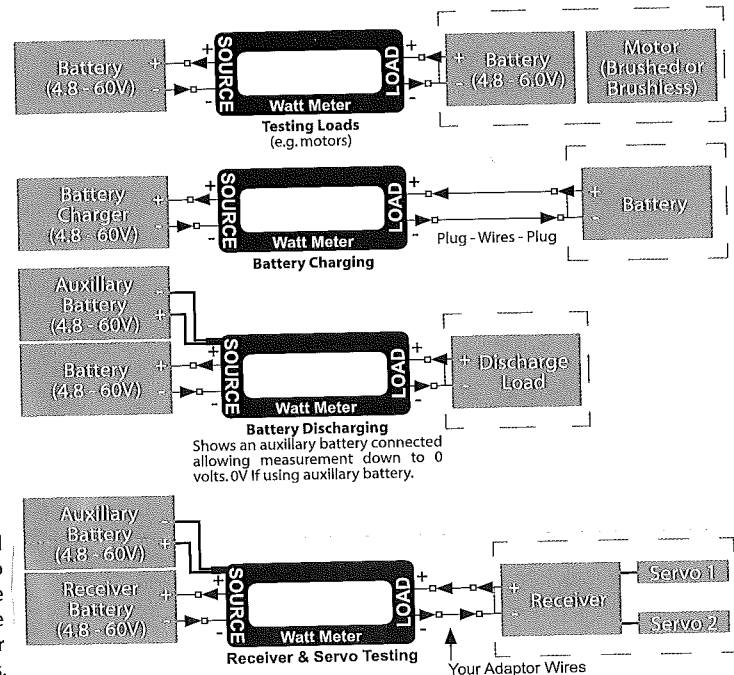
You can think of the Watt Meter as a set of jumper wires. Connect it in the same way and you can measure what the jumper wires are connected to. Like jumper wires, the Watt Meter is essentially a direct connection between same coloured SOURCE and LOAD wires, i.e. both the SOURCE and LOAD leads are electrically 'hot' when a battery is connected to either side. Current flows from SOURCE to LOAD. Make sure connections are secure to prevent component damage!

Example use #1: Battery on SOURCE side, Motor Speed Controller (ESC) and motor on LOAD side. With the ESC on, the Watt Meter shows the current in the motor, voltage and power at the battery and accumulates thre Ah and Wh while the motor is running.

Example use #2: With a battery charger on the SOURCE side and battery pack on the LOAD side, the Watt Meter shows the charging current into the battery, the voltage and charging power at the battery and accumulates the charge (Ah) and energy (Wh) into the battery.

5. FUNCTIONS 'Pro-Peak' Watt Meter and Power Analyser

Measures EIGHT parameters key to electric power safety & performance. Use it to: Prevent peak currents damaging the battery, motor control, motors, wiring and connectors. Verify sufficient operating voltage under load. Set cutoff voltages, check battery capacity & health. Confirm proper battery to charger operation. Detect the receivers actual operating current to decide whether a UBEC is needed.



SPECIFICATIONS:

- Operates from 4.8 - 60V
- 0V with optional auxiliary battery
- Measures:
 - 0 - 130A, resolution 0.01A
 - 0 - 60V, resolution 0.01V
 - 0 - 6554W, resolution 0.1W
 - 0 - 65Ah, resolution 0.001Ah
 - 0 - 6554Wh, resolution 0.1Wh

- 16 * 2 Backlit LCD display
- Size: 85 x 42 x 25mm
- Weight: 82g



Distributed to all good model shops by:
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