Powerwerx

Watt Meter Plus User Manual

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Introduction

Thank you for purchasing the Powerwerx Watt Meter Plus. This easy to use meter is ideal for monitoring eight electrical parameters that are essential to electric power safety and performance: Amps, Volts, Watts, Amp-hours, Watt-hours, Peak Amps, Minimum Volts (Sag), and Peak Watts. With a capacity of up to 60 volts and 140 amps, high contrast blue backlit display and auto reset feature, you'll be sure find many great uses for this watt meter and power analyzer.

Safety Precautions

High power electrical systems pose many dangers. It is the user's responsibility to be familiar with these dangers and take any action necessary to ensure safe use. Shorting a battery or battery charger can have serious consequences including explosion, fire, damage to equipment, or personal injury. Exceeding the rated specifications or shorting the watt meter will cause damage to the meter and void your warranty.

Initial Setup & Wiring

The red source wire goes to the positive (+) source or battery terminal. The black source wire (-) goes to the negative terminal. Use caution when making connections to ensure all connections are tight use adequate wire size to handle higher amps/current. This watt meter is available with either Powerpole connectors pre-installed or with bare wire ends for installation of your own type of connectors.

Auxiliary Power Connector Cable

By connecting the watt meter directly to a battery or power source, the meter requires a minimum of 5V to power itself. However, if you are using the optional auxiliary power connector, the meter can be powered through the auxiliary source, and measure the complete range of 0 to 60V. Another benefit of the optional auxiliary power connector is that it powers the meter through the auxiliary source. The regular source to load measurements become more precise, as the measurements do not include the small amount of power required to operate the meter. Only 2 of the 3 wires on the auxiliary power connector are used. Refer to the watt meter black housing for (+) and (-) indicators showing how to power the watt meter using the auxiliary input.

Watt Meter Display Screen

Startup Screen

Each time power is applied to the watt meter (or the auxiliary power connector), the startup screen is briefly displayed. Then the Amp-hours, Watt-hours, Peak Amps, Minimum Volts, and Peak Watts parameters are all reset to zero.

Display Parameters

The display screen will continuously measure and display Amps, Volts and Watts. All other values are presented sequentially every second. In the lower left position of the display, data values are identified by their units (Ah, Wh, Ap, Vm, Wp).

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

Only current from source to load can be measured. Drawing current in reverse will cause damage to the meter. The Amps (A) value displayed shows the average current over the last screen refresh. The Peak Amps value (Ap) displays the maximum current drawn since the meter's last startup. Spikes or peak amperage readings lasting a fraction of a second may also be captured.

Voltage & Minimum Volts (V, Vm)

The displayed Volts (V) value is the average voltage from the last screen refresh. The displayed Minimum Volts (Vm) value is the minimum voltage or "sag" measured on the source side, since the meter's last startup.

Watt-hours (Energy) (Wh)

The displayed value is the total energy delivered in Watt-hours since the meter's last startup. It is measured from the load side for the most accurate results.

Amp-hours (Charge) (Ah)

The displayed value is the total charge delivered in Amp-hours since the meter's last startup. It is measured from the load side for the most accurate results.

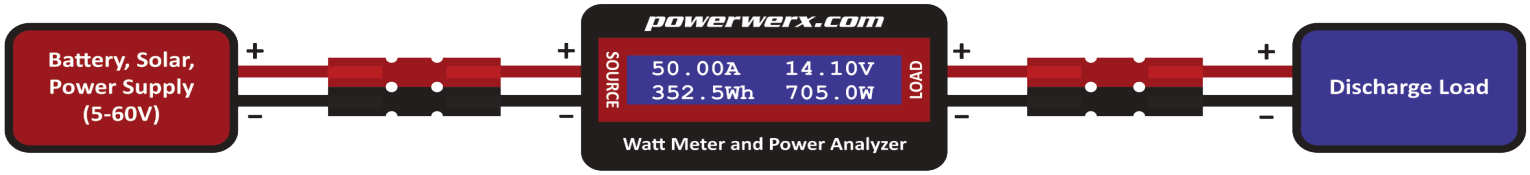
Watts (Power) & Peak Watts (W, Wp)

The displayed Watts (W) value is the average Watts (Amps * Volts) from the last screen refresh. The displayed Peak Watts (Wp) value is the maximum watts measured since the meter's last startup.

Connection Example Diagrams

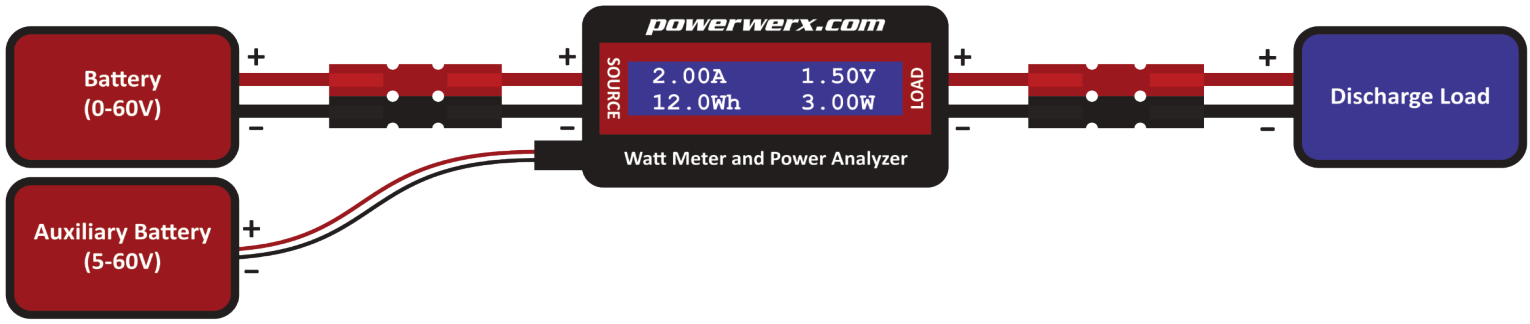
Typical Load Testing

The following diagram shows the most common use of the watt meter, connecting a DC source like a battery, solar panel or power supply (5-60V), to any DC load.



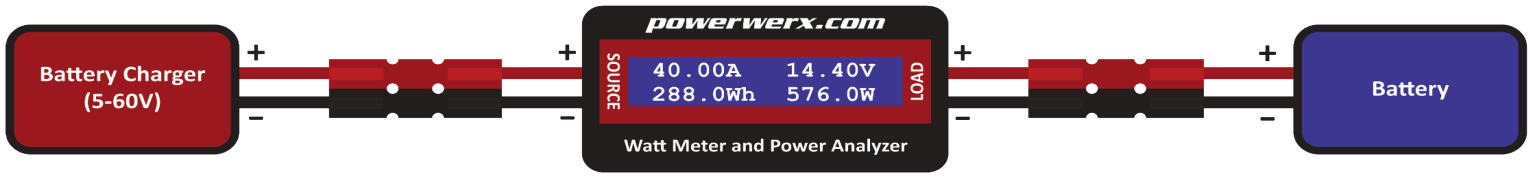
Load Testing Below 5 Volts

The following diagram shows the use of the auxiliary power connector which powers the meter externally and allows voltage measurements down to 0V. This configuration also provides increased accuracy and lower loss as power consumed by the meter is not included in the measurements.



Battery Charging

The following diagram shows how a battery must be moved to the load side to measure battery charge, as the power flows from the battery charger (source), to the battery (load).



Specifications

Amps:	75A continuous, 140A peak, 0.01A resolution from 1 ~ 140
Voltage:	0 ~ 60V, 0.01V resolution (5 ~ 60V without optional auxiliary power connector)
Wire Type:	8 gauge, high temperature wire (200°C)
Wire Length:	4 inches on each side
Watts:	0 ~ 7800W, 0.1 W resolution
Amp-hours:	0 ~ 65Ah, 0.001 Ah resolution
Watt-hours:	0 ~ 6554Wh, 0.1 Wh resolution
Timer:	Auto timer feature measures duration of last consumption
Display:	High-contrast blue backlit LCD display
Size:	4.4 x 1.8 x 1.0" (111 x 45 x 26mm)
Weight:	0.28 lbs. (126 g)
Warranty:	1 Year Limited Warranty