

DC Inline Watt Meter

RENOGY 150A
High Precision Watt Meter and Power Analyzer



RENOGY
THE FUTURE OF CLEAN ENERGY

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Important Safety Instructions

Please save these instructions.

This manual contains important safety, installation, and operating instructions for the meter. The following symbols are used throughout the manual to indicate potentially dangerous conditions or important safety information.

 **WARNING:** Indicates a potentially dangerous condition. Use extreme caution when performing this task.

CAUTION: Indicates a critical procedure for safe and proper operation of the controller

NOTE: Indicates a procedure or function that is important to the safe and proper operation of the controller.

General Safety Information

- Read all of the instructions and cautions in the manual before beginning the installation.
- There are no serviceable parts for this controller. Do **NOT** disassemble or attempt to repair the meter.
- Do **NOT** allow water to enter the controller.
- Make sure all connections going into and from the meter are tight.

Battery Safety

- **NEVER** short a rechargeable battery or the meter connected to a rechargeable battery. It can supply high currents and cause fire explosions. Do **NOT** let the positive (+) and negative (-) terminals of the battery touch each other.
- Ensure wiring and connections are rated to handle the input/out current and are properly assembled for each application
- Carefully read battery manuals before operation.
- Do **NOT** let the positive (+) and negative (-) terminals of the battery touch each other.
- Recycle battery when it is replaced.

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Limited Warranty for PV Modules	Error! Bookmark not defined.
Limited Warranty for Accessories	Error! Bookmark not defined.

General Information

The Renogy 150A high precision watt meter and power analyzer is specifically designed for monitoring solar performance. This easy to use meter can monitor eight electrical parameters that are essential to power safety and performance. They include: amps, volts, watts, amp-hours, watt-hours, peak amps, minimum volts (sag) and peak watts. With a 60 volt and 150A capacity, high contrast blue display screen, and auto set features, you will surely find many great uses for this watt meter and power analyzer.

Key Features

- Backlit LCD display
- Extremely low power consumption, practically ineffective to model's performance
- Precise and accurate readings
- Lightweight with many installation possibilities.
- Bare wire ends to allow the user freedom for their own type of connections.

Optional Component



Auxiliary Power Connector Cable

This cable allows the Renogy Watt Meter to connect to an optional power source, such as a battery pack or a power supply. It allows resetting of the meter's accumulated measurements and has 4 bare, tinned leads for universal application. The cable is not required, but very handy for many applications.

NOTE: Although the cable is an accessory to our product, it is not required. Also, Renogy currently does not carry this accessory and users will need to find their own means on attaining this cable.

Identification of Parts



Key Parts

1. Source Side Connection
2. Load Side Connection
3. Negative Wire
4. Positive Wire
5. Auxiliary Battery Port (Optional Component)

Installation

1. Connect the Positive (+) and Negative (-) leads of **SOURCE** to the battery or other device's terminals.
2. Connect the Positive (+) and Negative (-) leads of **LOAD** terminals to a device to complete the circuit.

CAUTION: Make sure connections are secure and expose no wire that may short.

NOTE: The user is responsible for attaching connectors that are rated to handle the expected voltage and current limitations.

Operation

Once the circuit is complete, the watt meter will turn on, display the default screen, then cycle through the remaining displays. You can think of the Watt Meter as a set of jumper cables; essentially a direct connection between same colored SOURCE and LOAD wires. Both the SOURCE and LOAD leads are electrically “hot” when a battery is connected to either side. Current flows from SOURCE to LOAD, assure that all connections are secure to prevent component damage.

Example #1:

Battery on SOURCE side, Motor Speed Controller (ESC) and motor on LOAD side, With the ESC on, the watt meter displays the current into the motor, voltage and power at the battery and the accumulation of Ah and Wh while the motor is running.

Example #2:

Solar Panel on SOURCE side and a battery pack on the LOAD side. The Watt meter demonstrates the charging current into the battery, the voltage and charging power at the battery, and the accumulation of the charge in Ah and Wh.

<table border="1"><tbody><tr><td>100.00A</td><td>10.00V</td></tr><tr><td>Data Queue</td><td>100.0W</td></tr></tbody></table>	100.00A	10.00V	Data Queue	100.0W	Startup Screen Displays the peak and minimum measurements recorded followed by the Amp-Hours (Ah) and Watt-Hours (Wh) being reset to 0.
100.00A	10.00V				
Data Queue	100.0W				
<table border="1"><tbody><tr><td>100.00A</td><td>10.00V</td></tr><tr><td>Data Queue</td><td>100.0W</td></tr></tbody></table>	100.00A	10.00V	Data Queue	100.0W	Measurement Screen Displays Amps, Volts, and Watts. Screens are updated every 0.4 seconds and they are presented sequentially every 2 seconds in their appropriate units (Ah, Wh, Ap, Vm, Wp).
100.00A	10.00V				
Data Queue	100.0W				

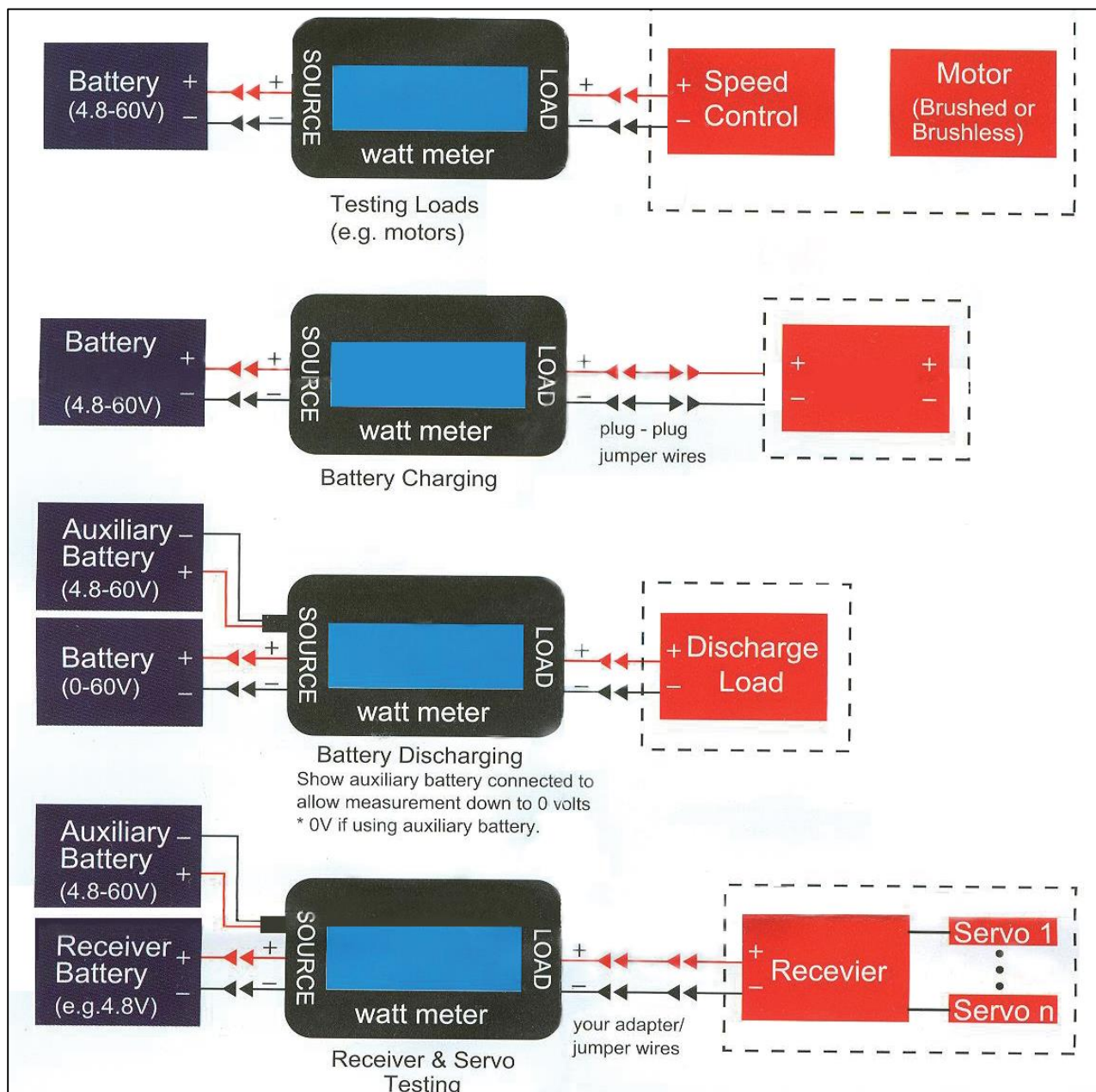
Measurement Screen Glossary

Parameter	Description
Amps, A & Ap (Current)	Only the current from SOURCE to LOAD is measured. The Amp value displayed is the average current over the last screen update interval. Peak Amp value (Ap) display is the maximum current drawn from the LOAD side. Peaks lasting only a fraction of a second can be captured. Supplying the auxiliary power with a voltage greater than what the meter it is measuring removes the meter's operation current from measurements. To reduce heating, measure currents over 65 amps from reduced time and consider using connector which can handle large current.
Volts, V & Vm (Voltage)	The displayed value is the average voltage over the last screen update interval. The displayed minimum volts value (vm) is the Minimum voltage (or "sag") measured on the SOURCE side. The volts value is measured on the SOURCE side.
Watt-Hours, Wh (Energy)	The displayed value is the total energy delivered in watt-hours and it is measured on the LOAD side. For best results, do not interrupt the SOURCE connection to the watt meter during a charge measurement.
Amp-Hours, Ah (Charge)	The displayed value is the total charge in Amp-hours(x1000=mAh) delivered since the startup screen and it is measured on the LOAD side. For accurate results, do not interrupt the SOURCE connection to the watt meter during a charge measurement.
Watts, W & Wp (Power)	The displayed value is the average power delivered in watts (=Volts x 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. Watts are measured on the LOAD side

Functions

The Renogy Power Analyzer measures parameters key to electric power safety and performance. Use it to:

- Prevent Peak Current from damaging battery
- Motor control
- Wiring and connectors
- Verify sufficient operation voltage under load
- Set cut off voltage
- Check battery capacity and health
- Balance battery cells
- Confirm proper battery charger operation



System Status Troubleshooting

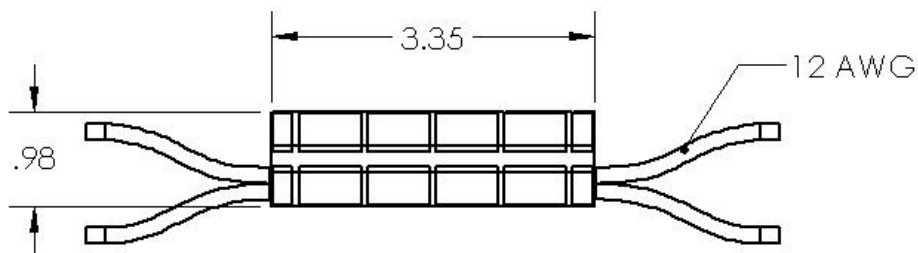
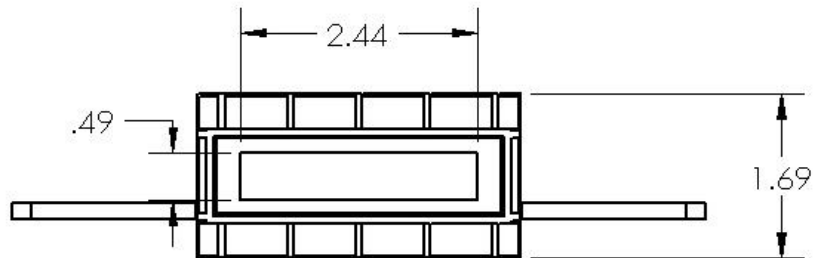
Meter not turning on

Make sure the connections are properly secured onto the LOAD and SOURCE side of the meter. If so, disconnect all connections and connect again to resume proper operation.

Technical Specifications

Description	Parameter
Operation Voltage:	7 - 55V
Auxiliary Battery Operating Voltage	0 - 55 V
Measurement Resolution:	0 - 150A, 0.01 A Resolution 0 - 60 V, 0.01 V Resolution 0 - 9000 W, 0.1 W Resolution 0 - 65 Ah, 0.001 Ah Resolution 0 - 9000 Wh, 0.1 Wh Resolution
LCD Display	62 x 12.5 mm (2.44 x 0.49 in)
Dimensions:	85 x 45 x 25 mm (3.35x1.77x0.98 in)
Weight	82 g (0.18lbs)
Wire Size	12 AWG

Dimensions



NOTE: Dimensions are in inches.

