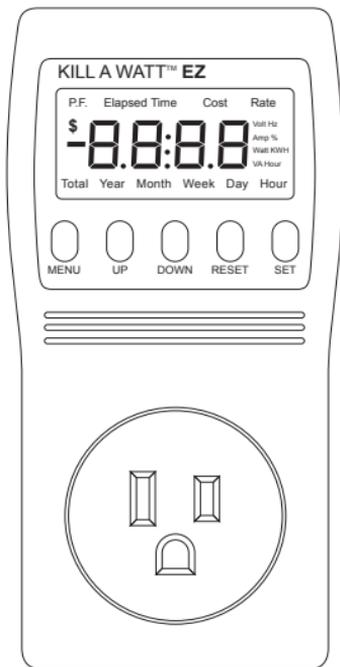


Kill A Watt™ EZ

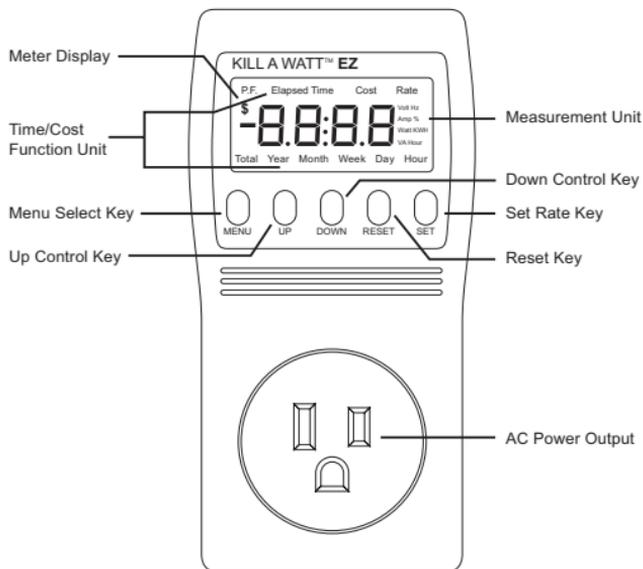
Operation Manual

P4460



Thank you for purchasing the P4460 Kill A Watt™ EZ Power Meter. This operating manual will provide an overview of the product, safety instructions, a quick guide to operation, and complete instructions for correct usage. Take the time to completely review these instructions as well as all safety warnings to ensure your best use of the product.

The P4460 Kill A Watt™ EZ is an easy to use consumer power meter allowing the user to accurately measure power consumption of household appliances and to determine the actual cost of power consumed. The unit will also project, in real time, the cost of continued use of the appliance in time periods of Hour, Day, Week, Month, and Year. The P4460 features a precise circuit which provides very accurate results. Voltage and current are measured using true RMS methods. Total consumed power is displayed in Kilowatt-hours (KWH). It is easy to use with a large display and simple 5-button interface. The unit is safe as it features ETL listing and over-current protection.



	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
<p>The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.</p>	<p>CAUTION:</p> <p>TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>	<p>The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the appliance.</p>
<p>WARNING:</p> <p>TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.</p>		

Read Instructions – All the safety and operating instructions should be read before the product is operated.

Retain Instructions – The safety and operating instructions should be retained for future reference.

Heed Warnings – All warnings on the product and in the operating instructions should be adhered to.

Follow Instructions – All operating and use instructions should be followed.

Cleaning – Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners.

Attachments – Do not use attachments not recommended by the product manufacturer as they may cause hazards.

Water and Moisture – Do not use this product near water – for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool and the like.

Accessories – Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Any mounting of the product should follow the manufacturer's instructions.

Ventilation – Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings (if any) must not be blocked or covered. The openings (if any) should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

Power Sources – This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

Grounding or Polarization – This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

Lightning – For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the product due to lightning and power-line surges.

Overloading – Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

Object and Liquid Entry – Never push objects of any kind into this product through openings (if any) as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

Servicing – Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Damage Requiring Service – Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- If the product has been dropped or damaged in any way.
- When the product exhibits a distinct change in performance – this indicates a need for service.

Replacement Parts – When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

Safety Check – Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

Heat – The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products that produce heat.

Quick Start Guide:

Use these quick start instructions to get up and running in just a few minutes. Be sure to review all the operating instructions later to ensure full enjoyment of the product.

1. Connect the Kill A Watt™ EZ unit to the outlet and the appliance to the unit
2. Press and hold the RESET key on the unit until “rEst” appears.
3. Press and hold the SET rate key until “Rate” is displayed and the currently set rate flashes.
4. Press the UP and DOWN key to set your desired rate. For example, if your utility charges you 10.6 cents per KWH, set the rate until the unit displays \$0.106.
5. Press the SET key again. “SAVE” will appear briefly in the display.
6. To display the actual cost of power consumed or projected cost, press the MENU key until “Cost” is displayed in the LCD.
7. Pressing the UP and DOWN key will cycle through the cost projection periods. For example if the display indicates \$2.34 and “Month”, the unit is projecting that the attached appliance will consume \$2.34 worth of electricity in one month.
8. To display the power measurements press the MENU key until “Volt” is displayed on the LCD.
9. To cycle through the various measurements press the UP and DOWN key as desired. The measurement unit currently selected will be indicated in the display.
10. To display the total consumed power in Kilowatt-Hours, press the MENU key until “KWH” is indicated in the display.
11. Review the complete operating instructions to familiarize yourself with all features.

Installation:

1. Remove the protective film (if any) covering the LCD meter display by pulling the tab marked "REMOVE BEFORE USE".
2. Turn off the appliance and remove the power cord from the outlet. Connect the Kill A Watt™ EZ unit to the outlet and the appliance to the unit. If the outlet is in an inconvenient location first connect a quality extension cord that is rated for the application.
3. Turn the appliance back on and confirm normal operation. If the appliance does not function, please recheck your installation.
4. Press and hold the RESET key on the unit. After a few seconds, "rEST" will appear momentarily on the LCD. Release the RESET key. This indicates that previous measurements have been deleted and that the total accumulated KWH, Elapsed Time and Cost measurements have been reset to zero.

Rate setting:

1. To accurately calculate the actual cost of electricity consumed and to project future costs, first you must set your local utility's electric rate into the unit. The rate is typically charged as dollars (or cents) per kilowatt-hour (KWH). You can find this rate on your last utility bill or you can contact the utility's customer service department to determine your rate. Some utilities charge two or more rates depending on consumption, time of day, or season. Use the rate that more closely reflects your actual use patterns, or average the two rates to suit your needs.
2. Press and hold the SET rate key on the unit. "Rate" will be displayed and the currently set rate will flash.
3. Press the UP and DOWN key to set your desired rate. If you hold the UP or DOWN key, the displayed rate will rapidly change. The range of settings is from \$0.000 to \$9.999. For example, if your utility charges you 10.6 cents per KWH, set the rate until the unit displays \$0.106.
4. Press the SET key again. "SAVE" will appear briefly in the display as the desired rate is set. The unit will return to the Measurements mode.

Cost display:

1. To display the actual cost of power consumed or projected cost, press the MENU key until "Cost" is displayed in the LCD.
2. Initially the actual total cost will appear. "Total" will be displayed. This dollar amount represents the total cost of power consumed by the attached appli-

ance since the last reset. This cost is calculated based on the total consumed power in KWH and the utility rate that you have set.

3. Don't be surprised if the total cost display is 0.00 initially. It will take some time to accumulate cost.
4. Pressing the UP and DOWN key will cycle through the cost projection periods. "Hour", "Day", "Week", "Month", and "Year" will display on the LCD to indicate the selected period. The numeric display will indicate the projected cost to run the attached appliance for the selected period. For example if the display indicates \$2.34 and "Month", the unit is projecting that the attached appliance will consume \$2.34 worth of electricity at the programmed rate in one month.
5. These projections are based on real time and historical measurements of actual consumption of the attached appliance. The longer the appliance remains attached to the unit, the more accurate the projection will be. This is especially true for appliances that cycle on and off. Examples include refrigerators, televisions, etc. Measurements conducted over long periods will accurately reflect true usage of the appliance. For example if a television is used 4 hours a day, it is important to measure the 20 hours a day the appliance is not in use to get a true projection of the cost.
6. For an appliance that cycles on and off, the projections cannot be accurate until the unit has measured some full on and off cycles. Otherwise the projection will be skewed. For example, if a connected television is powered on and you reset the Kill A Watt™ EZ, the unit will begin measuring the power consumption of a powered television. The only data available to the unit is power consumption when the television is turned on. Initial projections of cost will be high as the unit has not had the opportunity to measure power consumption during the off cycle. If you observe the cost projection while the television is turned off, you will see it decline over time. After the unit has been able to measure several typical use cycles, the cost projections will settle to an accurate projection based on real usage.
7. For a device that is never turned off (e.g. a computer server) the cost projections will take less time to settle. You can observe accurate cost projections within minutes. It is still best to let the unit measure power consumption over an extended period. There can be power consumption variations even in devices that are never turned off.

Measurement display:

1. To display the various available power measurements press the MENU key until "Volt" is displayed on the LCD. In the Measurement display mode, the

LCD can display meter readings such as Volts, Current, Watts, Frequency, Power Factor, and VA.

2. To cycle through the various measurements press the UP and DOWN key as desired. The measurement unit currently selected will be indicated in the display.
3. Volts are displayed in Volts (true RMS), Current is displayed in Amps (true RMS), Watts are displayed in active power Watts, VA is displayed in apparent power VA ($VA=V_{rms} \times I_{rms}$), Frequency is displayed in Hertz (Hz), Power Factor (P.F.) is displayed as $(Watts/V_{rms} \times I_{rms})$.

Rate display:

1. To display the current programmed rate used in cost calculations, press the MENU key until "Rate" is indicated in the display.
2. The current programmed rate is displayed in dollars and cents. For example a programmed rate of 10.6 cents per KWH will be displayed as \$0.106.
3. To change the programmed rate, please refer to the section on "Rate setting".

Kilowatt-Hour display:

1. To display the total consumed power in Kilowatt-Hours, press the MENU key until "KWH" is indicated in the display.
2. Consumption will be displayed in Kilowatt-Hours (from 0.01 KWH to 9999 KWH). As KWH accumulate, the decimal point in the display will shift to accommodate a full reading.
3. To reset the accumulated KWH measurement, press and hold the RESET key on the unit. After a few seconds, "rEST" will appear momentarily on the LCD. Release the RESET key. This indicates that previous measurements have been deleted and that the total accumulated KWH, Elapsed Time and Cost measurements have been reset to zero.

Elapsed Time display:

1. To display the total elapsed time that the Kill A Watt™ EZ has been connected to power since the last reset, press the MENU key until "Elapsed Time" is indicated in the display.
2. Time will initially be displayed as Hours:Minutes (from 00:00) and then switch to Hours only (to 9999) to accommodate a full reading.
3. To reset the elapsed time measurement, press and hold the RESET key on the unit. After a few seconds, "rEST" will appear momentarily on the LCD.

Release the RESET key. This indicates that previous measurements have been deleted and that the total accumulated KWH, Elapsed Time and Cost measurements have been reset to zero.

Retained measurements:

1. When power to the Kill A Watt™ EZ is interrupted, the display will go blank and the unit will stop measuring consumption and elapsed time. However all accumulated measurements including KWH, Elapsed Time, and actual total cost will be retained.
2. This allows the user to take measurements anywhere and relocate the unit to a more convenient location to read the display. When the unit is plugged back in, the display will become active and the accumulated data can be retrieved by using the keys. Data should be retrieved immediately as the Elapsed Time counter will restart and potentially skew the data as time with no load elapses.
3. To reset the accumulated measurements, press and hold the RESET key on the unit. After a few seconds, "rEST" will appear momentarily on the LCD. Release the RESET key. This indicates that previous measurements have been deleted and that the total accumulated KWH, Elapsed Time and Cost measurements have been reset to zero.

Specifications:

Function	Range	Accuracy	
		Typ.	Max.
RMS Voltage	85-125 Vrms	0.2%	1%
RMS Current	0.00~15.00 Arms	0.3%	1%
Active Power	0~1875 Watt	0.5%	2%
Apparent Power	0~1875 VA	0.5%	2%
Line Frequency	47.0~63 Hz	0.1 Hz	2%
Power Factor	0.00~1.00	0.01	0.03
Power Quantity	0.00~9999 KWH	0.5%	2%
Time Quantity	00:00~9999	30ppm	
Display Update	1 Sec	-	
Power Consumption	10 Wmax	-	

Typical: V=90V~125V, A=0.2A~15A