

POWER CHECK PROGRAM

KILL A WATT Energy Meter Instructions

The Kill A Watt Power Meter can be used to measure the electricity use from most plug-in devices and appliances. *Note: Write down the readings before you unplug the meter or data will be lost.*

Buttons

The examples below use buttons 3 and 5. Most people will not use buttons 1, 2 and 4.

Button 1

Line voltage in volts

Button 2

Current in amperes

Button 3 (button toggles)

Power in watts or volt amperes

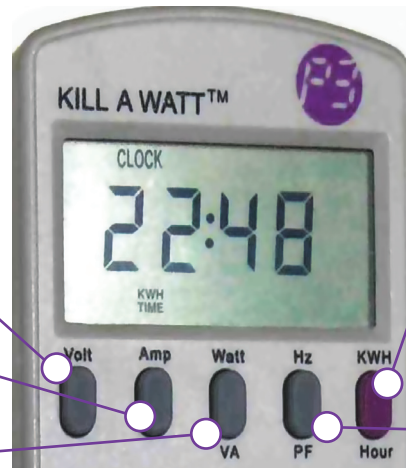


Photo 1

Button 5 (button toggles)

Electrical energy used in kilowatt hours (kWh) and the time over which the electrical energy has been consumed in hours and minutes

Button 4 (button toggles)

Frequency of the line voltage in Hertz and power factor

Examples

Example 1 - Quick Check - This is a good way to get started.

Use this method to measure small or occasional use devices, especially those that draw electricity when plugged in but turned off, such as phone chargers, TVs and computers.

1. **Plug meter into outlet and device into meter.** Push button 3 to display the current power usage in watts.
2. **Check several devices and compare electricity use** to help prioritize which devices to unplug when not in use (or to plug into a power strip that can be turned off). How many watts does your phone charger use when it is plugged in? For context, a standard incandescent light bulb uses 100 watts and an equivalent compact fluorescent uses 23 watts.

Example 2 - Annual Consumption & Cost Calculation

Plug the device or appliance into the meter. Leave it plugged in for the period of time that reflects typical usage of the item. For appliances like a refrigerator at least one hour and up to 24 hours is recommended.

1. After the desired time has elapsed, **convert the total time (Button 5)** to a decimal by dividing the number of minutes by 60, then add the hours. In the Photo 1 example: $48 \text{ min.} / 60 \text{ min./hr} + 22 \text{ hr} = 22.8 \text{ hr}$.
2. **Press button 5 again to display the cumulative energy consumption (kWh).** Divide this by the total time for average instantaneous kilowatt consumption. In Photo 2 example: $1.14 \text{ kWh} / 22.8 \text{ hr} = 0.05 \text{ kW}$



Photo 2

Example 2 continued on reverse...

Example 2 continued...

3. **Multiply the #2 result by your estimate** of the number of hours the device is used in a year for the total annual kilowatt consumption. Two examples follow:
 - a. For appliances that operate 24 hours a day like a refrigerator, multiply the result by the number of hours in a year (8,760) for annual kWh consumption: $0.05 \text{ kW} \times 8,760 \text{ hr/yr} = 438 \text{ kWh}$
 - b. If you watch TV an average of 3 hours per day and unplug it or switch off the power strip between uses: $3 \text{ hr} \times 365 \text{ days/yr} = 1,095 \text{ hr/yr}$. $1,095 \text{ hr/yr} \times 0.05 \text{ kW} = 54.8 \text{ kWh/yr}$ (If the device draws electricity when it is turned off [i.e. standby lights that stay on], it is a good idea to use the Kill A Watt to measure electricity use when it is not operating but plugged in and add the two figures together to determine annual energy consumption and cost.)
4. **Multiply the #3 result by kWh electricity rate for annual cost.** (As of December 2009, Xcel Energy charges \$0.10/kWh): Example 3a: $438 \times 0.10 = \$43.80/\text{yr}$ Example 3b: $54.8 \times 0.10 = \$5.48/\text{yr}$ (TV electricity use or costs vary widely)

▶ If you have questions about operating the Kill A Watt meter, contact the Center for ReSource Conservation at 303-999-3820 x224. ◀

Energy Star Performance Ratings

The table below provides Energy Star performance ratings for common appliances. For reference, the average Colorado household uses 7,500 kWh annually.*

Appliance	Energy Star (kWh/yr)	Cost to operate/year
Refrigerator (Energy Star rated 23 ft ³)	407	\$40.70
Dishwasher	341	\$34.10
Clothes Washer	243	\$24.30
Residential Freezer	488	\$48.80
Clothes Dryer	1200	\$120.00
Room Air Conditioner	1982	\$198.00
Toaster (5 min/day)	48	\$4.80
DVD Player (2 hr/day)	188	\$19.00
TV – 42" Plasma	281	\$28.00
100 watt bulb (8 hrs/day)	292	\$29.00
Space heater (1 hr/day)	730	\$73.00

Power Check Program

The Power Check Program is one of many programs offered by ClimateSmart™ to help City of Boulder and Boulder County residents and businesses reduce energy use, save money and reduce greenhouse gas emissions. ClimateSmart™ is jointly funded by the City of Boulder and Boulder County. Other programs include:

Residential Energy Action Program (REAP): for home energy audits and assistance with scheduling and financing home energy improvements.

Free Energy Efficiency Upgrades: for income-qualified households in Boulder County.

Rebates, Tax Incentives and Loans: for commercial and residential energy efficiency and renewable energy improvements.

For more information about these and additional programs, go to www.beClimateSmart.com.



www.beClimateSmart.com



*from Xcel Energy