watts up?

- DISPLAYS COST OF ELECTRICITY IN DOLLARS AND CENTS
- SAVE MONEY BY LOWERING YOUR ELECTRIC BILL
- TRACKS TRUE RMS POWER OVER TIME
- SIXTEEN VALUES DISPLAYED, UPDATED IN REAL TIME
- PEAK READINGS CAPTURE SURGES
- UNIQUE DESIGN IS EXCEPTIONALLY EASY-TO-USE
- DUTY CYCLE IDENTIFIES HOW OFTEN DEVICES OPERATE
- ELAPSED TIME DISPLAYED IN HOURS AND DAYS
- MONTHLY AVERAGES FOR COST AND KWH
- CUMULATIVE POWER AND POWER FACTOR
- TWO-TIER PRICING INCORPORATES VOLUME PRICING
- HOME AUTOMATION MAGAZINE TOP 50 EDITORS PICK

1800 WATTS

c UL us

15 AMPS

WATTS UP? incorporates sophisticated digital electronics that enable precise and accurate measurements in an easy-to-use format. State-of-the-art digital microprocessor design utilizes high-frequency sampling of both voltage and current measurements for true power. Power factor is captured so even phase-shifted loads such as motors are accurately measured. Fast, intuitive and easy-to-use, Watts up? quickly and accurately measures any 120 VAC appliance.

ENERGY SERVICE COMPANIES can now determine exact loading requirements for equipment enabling clients to see return on investment and energy costs, easily demonstrating replacement savings.

ELECTRICAL ENGINEERS can quickly and accurately measure any 120 volt lab device without cumbersome and timely leads or oscilloscopes.

CONSUMERS finally have a convenient way to monitor and project energy costs and find out what their electric devices cost to operate.

ELECTRICIANS AND SERVICE REPAIR - after outlets are installed, Watts up? can quickly identify problems, measure line voltage, diagnose voltage drop or loading problems and educate customers about true costs.

CONSERVATION and environmental programs require accurate assessment. The first step in going solar or off-grid is a realistic measurement of your current and future capacity requirements.

APPLIANCE DESIGNERS can obtain accurate power profiles under different conditions, enabling optimization of different control parameters.

TEACHERS are finding *Watts up?* a great new tool in electricity education. The companion Teacher's Guide includes a review of electricity principles, instructions for use, lesson plans, student exercises and 2, 3, 4 and 5-day modules.

watts up? PRO

- DOWNLOADS DATA TO PC, INCLUDES SOFTWARE FOR GRAPHING
- PAYBACK CALCULATOR FOR NEW APPLIANCE PURCHASES
- QUICKLY STORE POWER PROFILES OF MULTIPLE DEVICES
- NON-VOLATILE MEMORY REQUIRES NO BATTERY

Watts up? PRO includes memory storage and the ability to download the data to a PC, in addition to all the standard features of Watts up?. One thousand data points are stored, starting with a sampling rate resolution of one second. The sample rate resolution increases over time (sample rate equals total time divided by 1000) so years of usage can be accurately recorded. The included serial cable and software program allows the data to be quickly downloaded to a PC for creating usage charts. Included in the software is a Data Table, Charting, and Payback Analysis, which calculates the time required for a new energy efficient appliance to pay for itself. The data can also be exported in a comma-delimited format to popular spreadsheet programs for further analysis.

watts up?

POWER METER SPECIFICATIONS

Current Watts

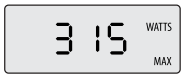
Indicates the instantaneous true RMS wattage currently being consumed by the appliance plugged into Watts up?.

Minimum Watts

Determines the lowest wattage drawn for appliances that run continuously.

Maximum Watts

Shows the maximum wattage since Watts up? was plugged in or the MAXIMUM was last reset.



Power Factor

Power factor is a number between zero and one, and it represents the phase angle shift between the voltage and current. RMS Watts/Apparent Watts.

Cumulative Watt Hours

Indicates the cumulative watt hours consumed since Watts up? was plugged in or last reset. Watt hours equal watts multiplied by time.

Average Monthly KWH

Shows the watt hours which will be consumed each month. This is used to determine how much electricity a load will use per month. AVERAGE MONTHLY KWH = (watt hours)/{(# of elapsed days)/(30 days)}.

Elapsed Time

Indicates the elapsed time since Watts up? was plugged in or last reset.

Duty Cycle

Shows the duty cycle as a percent. Duty cycle is the percent of time the load is above a threshold level.

Cumulative Cost

Indicates the amount of money consumed since Watts up? was plugged in or last reset.

Average Monthly Cost

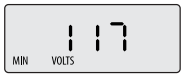
Shows the cost per month for the appliance that is plugged in. This is a prorated average. AVERAGE MONTHLY $ = (cost) / {(# of elapsed days) / (30 days)}.

Current Volts

Indicates the line voltage.

Minimum Volts

Shows the minimum voltage. This can be a good indication of the line quality serving the outlet Watts up? is plugged into.



Maximum Volts

Shows the maximum voltage. This value shows voltage surges.

Current Amps

Indicates the current (amps) being drawn by the appliance plugged into Watts up?.

Minimum Amps

Shows the minimum amps. This will typically read zero. It is used to determine the lowest current drawn for appliances that run continuously.

Maximum Amps

The display now shows the maximum amps since the meter was plugged in or the MAXIMUM was last reset.

Duty Cycle Watts Threshold

Shows percent of time appliance is above a threshold level. The threshold can be changed to any number between one and 1500 watts.

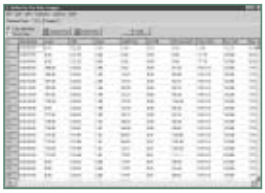
Tier 2 KWH Threshold

Some utilities use more than one rate structure. Watts up? has the capability to utilize a second rate based on total usage, which is called the TIER 2 rate.

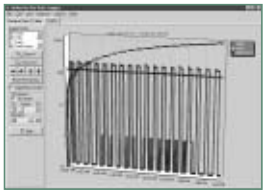
Examples shown represent a 150 watt bulb turned on eight hours per day for two days.

Watts up? PRO

Watts up? is also available in a professional version. The PRO model stores the data described above into memory, and can download the data to a computer. The data is stored every second until 1000 records are stored. At that point, the sample rate doubles and the data is stored every 2 seconds. When 1000 records are stored, the sample rate doubles again to 4 seconds. The sample rate continues to double as needed so Watts up? PRO can record indefinitely. If Watts up? PRO is unplugged, or if power is lost, the data in memory is maintained and data will continue to be recorded once power is restored. The Payback Calculator determines the time required for a new energy efficient appliance to pay for itself.



tables



combination graphs

payback calculator

Technical Specifications

- 120 VAC, 60 Hz, 15 amps continuous
- True RMS power measured and displayed
- Accuracy is: +/- 3%, +/- 2 counts of the displayed value for loads above 10 watts
  Accuracy is: +/- 5%, +/- 3 counts of the displayed value for loads below 10 watts
  *Accuracy is of the displayed value, not the range. Some devices claim a smaller number for accuracy but it refers to the range. For instance, a specification of 0.2% of the range sounds good, but it is actually 3.6% of the display (.02 * 1800 = 3.6), which is a worse accuracy.*
- RS232 interface (PRO). A USB to RS232 adapter is available
- Mains supply voltage fluctuations not to exceed +/- 10% of the nominal voltage
- Input is via 6' electric cord, output is via outlet on top of meter

For UL rating

- Indoor use only
- Altitude up to 2000 meters
- Temperature 50˚ C to 400˚ C
- Installation Category II
- Maximum relative humidity 80% for temperatures up to 310˚ C decreasing linearly to 50% relative humidity at 400˚ C.
- Pollution Degree 2

Warranty

Watts up? is guaranteed for 12 months from date of purchase. If a problem arises, simply return Watts up? to the place of purchase, along with proof of purchase. E.E.D believes it is everyones responsibility to help the environment. In this effort, we use recycled components wherever possible and minimize extraneous packaging. We hope that using Watts up? helps people understand the costs involved with electricity, encouraging conservation and participation in environmental issues.

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