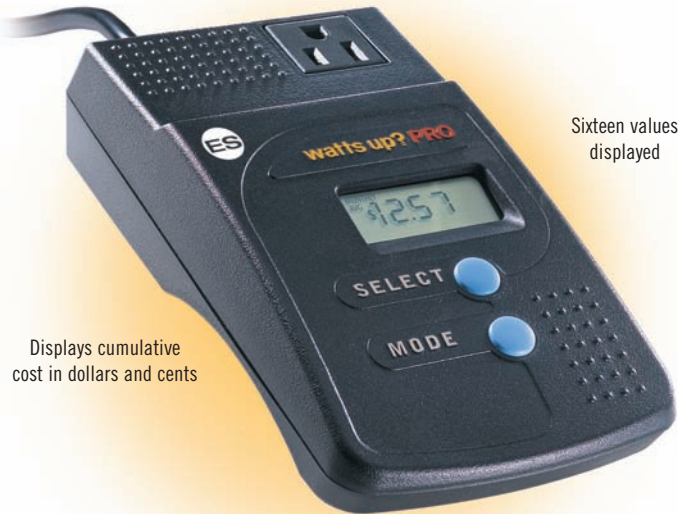




watts up?

- > DISPLAYS COST OF ELECTRICITY IN DOLLARS AND CENTS
- > SAVE MONEY BY LOWERING YOUR ELECTRIC BILL
- > REAL TIME GRAPHING OF RESULTS
- > TRUE POWER, RMS VOLTS AND RMS CURRENT
- > SIXTEEN VALUES DISPLAYED, UPDATED IN REAL TIME
- > PEAK READINGS CAPTURE SURGES
- > 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
- > DATA LOGGING WITH UP TO 13,000 RECORDS
- > ES VERSION FOR COMMERCIAL APPLICATIONS

Plug Watts up? into any 120 VAC outlet



Sixteen values displayed

Displays cumulative cost in dollars and cents

Changes to local electricity rate

Fast, intuitive and easy-to-use

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. Fast, intuitive and easy-to-use, Watts up? quickly and accurately measures any 120 VAC appliance.

ENERGY SERVICE COMPANIES enables 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 identify energy costs and find out how to reduce their utility bill.

watts up? PRO/ES



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 automatically increases over time (sample rate equals total time divided by 1000) so years of usage can be accurately recorded. The PRO ES has additional memory with capacity for over 13,000 records. 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.

For applications requiring more data, use the Watts up? PRO ES model. Boasting non-volatile memory storage of over 13,000 records, the ES can store over a weeks worth of data and still provide one minute resolution between records. In addition, the recording interval can be set by the user to any value between one second and one day. Unlike the regular PRO model, the interval does not change in the ES even if the memory fills.

METERS	WU	WU PRO	WU PRO ES
Values displayed	16	16	16
Cost displayed	yes	yes	yes
PC Interface	no	yes	yes
Software provided	n/a	yes	yes
Real-time logging	no	capable	capable
Storage (# of records)	0	>1,000	>13,000
Interval setting	n/a	automatic	manually set
Communication speed	n/a	9,600	38,400

SOFTWARE	standard software	RTL software
Collects data and graphs it	yes	yes
Updates time stamp to real time	yes	yes
Exports to excel and word	yes	yes
Updates in real time	no	yes
Fastest refresh rate	n/a	1 sec
Strip chart mode	no	yes
Notifications	no	yes
Automatic log files	no	yes
Statistics generated	no	yes

1800 WATTS

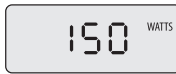
Electronic Educational Devices
2345 South Lincoln Street
Denver, Colorado 80210
www.wattsupmeters.com



15
AMPS

Current Watts

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



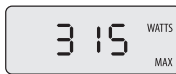
Minimum Watts

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.



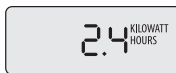
Power Factor

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



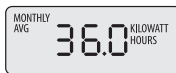
Cumulative True Watt Hours

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



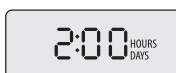
Average Monthly KWH

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.



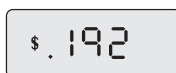
Duty Cycle

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



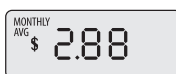
Cumulative Cost

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 RMS voltage.



Minimum Volts

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



Maximum Volts

Shows the maximum RMS voltage. This value shows voltage surges.



Current Amps

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



Minimum Amps

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



Maximum Amps

Shows the maximum RMS 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

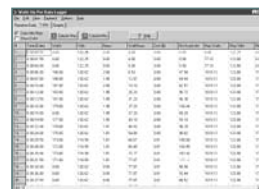
Some utilities use more than one rate structure. Watts up? has the capability to utilize a second rate based on total usage, which is called the TIER 2 rate.



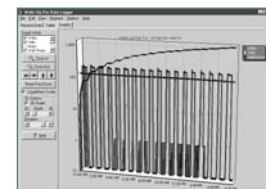
Examples shown represent a 150 watt bulb turned on eight hours per day for two days.

Watts up? PRO /ES Model

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. The ES model has capacity for over 13,000 records of storage. The sample rate is user selectable and does not change. If the memory fills, the meter stops logging. 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 power, RMS volts and RMS current 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
- > RS232 interface (PRO/ES). 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.

YOUR AUTHORIZED DEALER

Electronic Educational Devices
2345 South Lincoln Street
Denver, Colorado 80210
www.wattsupmeters.com
877.928.8701

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11/05 REV 8