

What is an Uninterruptible Power Supply (UPS)?

An uninterruptible power supply (UPS), or battery backup, is primarily used to provide a backup power source to important desktop computer hardware components. In most cases, the pieces of hardware include the main computer housing and the monitor, but can include other important hardware such as a phone that requires electrical power to operate, your router to keep the internet connection up and/or a DVR so the TV programs you are recording continue through a power outage.

A UPS for home use can look like this APC Power Saving Back-UPS Model 750.



This is the model (a used one) that will be given away at this meeting

How does a computers uninterruptible power supply work?

(From howstuffworks.com)

What your computer expects to get from the power grid (in the United States) is 120-volt AC power oscillating at 60 Hertz. A computer can tolerate slight differences from this specification, but a significant deviation will cause the computer's power supply to fail. A UPS generally protects a computer against four different power problems:

- **Voltage surges and spikes** - Times when the voltage on the line is greater than it should be
- **Voltage sags** - Times when the voltage on the line is less than it should be
- **Total power failure** - Times when a line goes down or a fuse blows somewhere on the grid or in the building
- **Frequency differences** - Times when the power is oscillating at something other than 60 Hertz

There are two common systems in use today: standby UPS and continuous UPS. A **standby UPS** runs the computer off of the normal utility power until it detects a problem. At that point, it very quickly (in five milliseconds or less) turns on a power inverter and runs the computer off of the UPS's battery. A power inverter simply turns the DC power delivered by the battery into 120-volt, 60-Hertz AC power.

In a **continuous UPS**, the computer is always running off of battery power and the battery is continuously being recharged. You could fairly easily build a continuous UPS yourself with a largish battery charger, a battery and a power inverter. The battery charger continuously produces DC power, which the inverter continuously turns back into 120-volt AC power. If the power fails, the battery provides power to the inverter. There is no switch-over time in a continuous UPS. This setup provides a very stable source of power.

Standby UPS systems are far more common for home or small-business use because they tend to cost about half as much as a continuous system. Continuous systems provide extremely clean, stable power, so they tend to be used in server rooms and mission critical applications.

Uninterruptible Power System (UPS)

PCUG 6-25-15

An uninterruptible power supply (UPS), or battery backup, is primarily used to provide a backup power source to important desktop computer hardware components. It protects against:

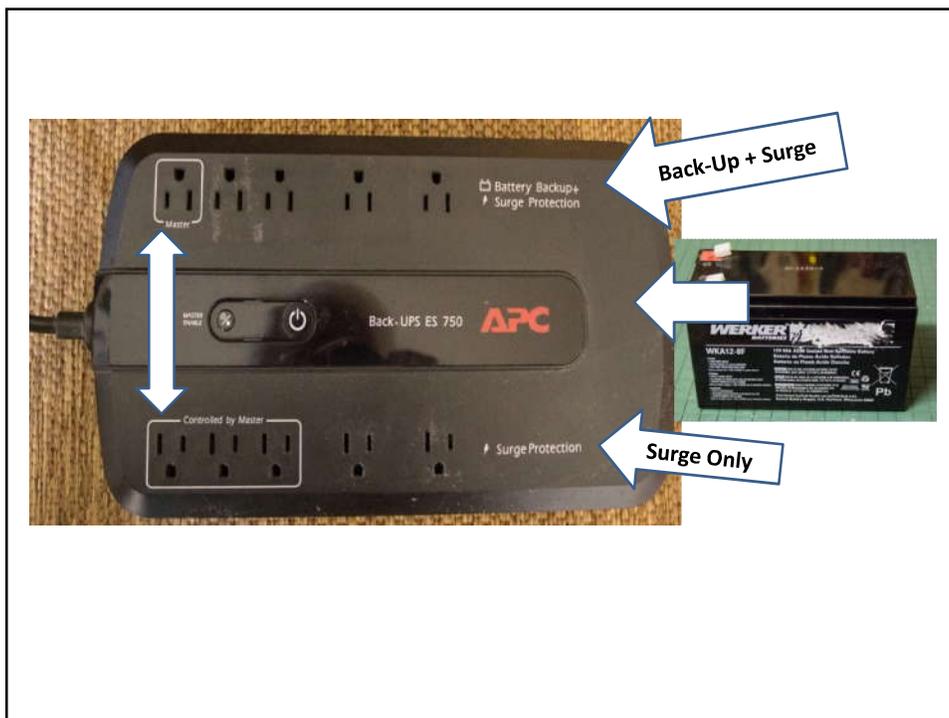
- Voltage surges and spikes** - Times when the voltage on the line is greater than it should be
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What devices would you want to protect?

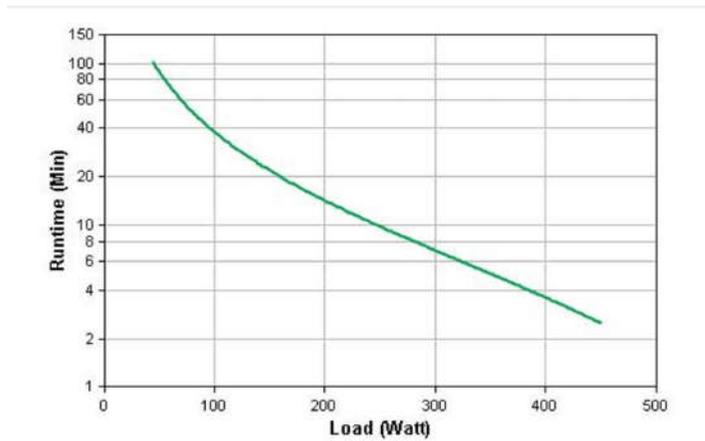
- Your main computer and the monitor
- A phone that requires electrical power to operate
- Your router to keep the internet connection up
- A DVR so the TV programs you are recording continue



Example: An APC Power Saving/UPS Model 750



How Long Does It Provide Power?



PowerChute Personal Edition

Welcome to your power protection and energy management system

Current Status

Electrical power is being supplied by: AC Utility Power

Energy Usage Rate: 2.48 kWh per day

Remaining battery charge is: 101 %

Battery is currently: Charging

Last transfer to battery was caused by: Blackout on 4/23/2015

Result of last manual self-test is: Passed on 4/23/2015

Input Voltage: 119 volts

Load on Battery Backup

0 225 450 Watts

Your battery backup is currently providing 103 Watts of power. You can connect more equipment to your battery backup.

Energy Usage Rate: 2.48 kWh per day

Estimated Battery Time: 24 min

Power Source: AC Utility Power

Your battery backup is operating normally

PowerChute Personal Edition

Welcome to your power protection and energy management system

Performance

Your battery backup last intervened on 4/23/2015, at 2:55:43 PM.

Power Problem History

View performance information for the last

Power problem	Unit switched	Time on battery
Blackout	1	1 minute, 25 seconds
Undervoltage	0	None
Overvoltage	0	None
Electrical noise	0	None
Total:	1 times	1 minute, 25 seconds

Note: Power problems of a very short duration are not recorded here.

CO₂ Emissions Rate: 2.88 lbs per day

Estimated Battery Time: 25 min

Power Source: AC Utility Power

Your battery backup is operating normally