

Computer Troubleshooters Redlands

carl@ctredlands.com.au
www.ctredlands.com.au

T: 1300 769 939
F: 07 3488 0236

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Global Newsletter
March 2008

Electricity – Friend or Foe?



Most technology depends on a clean, uninterrupted supply of electricity. Unfortunately, inconsistencies in your electrical supply or a sudden complete loss of power can cause major damage to computer systems and other sensitive equipment. This month we investigate power problems and the devices that are essential for protecting your technology investment.

Electrical supply is subjected to brownouts, surges and even complete outages. Brownouts are momentary slumps in supply, to a level under 100 volts. They are normally caused by heavy use devices (e.g. motors, compressors, air conditioners and laser printers) being turned on, creating a momentary drain on the power supply. Brownouts can affect a computer even if the voltage dip cannot be seen (e.g. the lights in the room dimming). And if they don't crash your PC, they can cause stresses that can shorten the life of its components.

Surges of power often follow brownouts as the power rebounds back to normal, and can have similar effects caused by too much voltage.

Complete outages are most common in suburban areas where lines are hung on poles that are exposed to lightning.

Surge/power filters or protectors are designed to fail and cut the offending power supply before it damages your equipment. A direct lightning strike or similar condition will destroy any surge/power filter, but it will indicate that it has lost protection and may still have some protection in reserve until it can be replaced. A surge/power filter is designed to self-sacrifice itself, and is low cost compared to some other alternatives.

An **Uninterruptible Power Supply (UPS)** sits between your power outlet and your electronic device, providing backup power from its batteries when the mains supply fails. This gives you time to safely save open files and initiate the computer's shutdown process.

Additionally, most UPSs regulate the power that comes from the wall, eliminating sags, spikes, noise, and other electrical interference that can damage equipment and data or interrupt operations.

If I have a UPS, do I need surge protection? Yes - International standards don't require UPSs to have surge protection, so they don't have a high level of protection as this would increase their cost and make them uncompetitive. They are designed to handle the end of a major surge, not the whole surge itself, so the UPS device itself also needs adequate protection from surges. It's much cheaper to replace your failed surge protector than your fried UPS.

How long can things run on a UPS during a blackout? Well, there is no standard answer, as UPS solutions are available to support devices from anywhere from five minutes to two days. There are also several types of UPS, namely **Standby**, **Line-interactive**, and **On-line**, which have different features (and associated costs). Typically, you should plan on enough run time to allow you to save any open files and safely shutdown your system.

In many cases, power protection can be justified by looking at the consequences of not having it. Several hours of professional work can be lost with just one brownout, due to a computer crashing before the work can be saved to disk. The consequences can be even more devastating if the power interruption physically damages the saved, historical data on the computer's disk. This can cause a business to suffer expensive setbacks in terms of time and disruption, even if the data can be restored from a recent backup.

Talk to your local Computer Troubleshooter about how power protection can help to prevent you from losing valuable time and money.



Contact your local Computer Troubleshooters

Carl Harbinson
1300 769 939