

Medical Office Systems, LLC

July 2010 Newsletter

Power Protection

I presume we all like summer, but we may not like the thunderstorms and severe weather that usually happen in summer. Your computer definitely does not like either occurrence. Although the possibility of power outages or surges can happen any time of year, the “big show” a thunderstorm creates grabs all our attention. This month we discuss how to protect your computers, electronics, and data from any electrical problems.

Missed or lost a newsletter? You can always get back issues in Adobe PDF format online at my website - www.MedOfficeSystems.com/newsletter_tips.htm. If you have any questions about this or any prior newsletters, please call me at 630-852-1736 or 630-373-7429.

Power Protection

Let me remind everyone that having power protection systems for your computers is a basic requirement. A simple surge protector is good, but only protects against the first two of the seven problems listed below. Following the list of seven power problems is a discussion of how an Uninterruptible Power Supply (UPS, or battery backup system) can protect your computers and your data from more than just a power surge.

1. Over Voltage: Spikes

- Due to a momentary discharge of static electricity, such as a lightning strike
- High voltage from lightning typically travels through power lines to your home or office

2. Over Voltage: Surges

- Due to sudden shutoff of heavy power using equipment, such as an air conditioner
- Like an aftershock from an earthquake, the sudden stop of an A/C unit creates a “power ripple”.

3. Under Voltage: Brownout

- Due to low voltage from the utility, or startup of large power equipment, such as an A/C unit
- Any sudden power draw can reduce the voltage available to all devices on the same circuit.

4. No Voltage: Outage

- Complete loss of power
- Example: line down, line cut, power plant goes off line, circuit breaker pops

5. DC infiltration

- A defective power converter or a large DC motor can “backfeed” DC current into an AC line
- Example: sudden shutoff of a large DC motor – as it spins down, it actually generates current!

6. Static: momentary frequency compression or expansion

- Certain types of electric motors generate enormous amounts of static
- Example: equipment with large electric motors: air compressors, fluid pumps, drill press

7. Jitter: frequency shifts

- Similar to Static, it is a deformation of the normal AC frequency of 60 cycles per second
- Example: the same culprits as number 6 - equipment with large electric motors

Source: “Seven Power Problems” White Paper by American Power Conversion (APC) Inc.

As discussed earlier, a simple surge strip will only protect against #1 and #2 in the list. The way to protect against the remaining 5 items is by using an Uninterruptible Power Supply.

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Uninterruptible Power Supplies: “UPS” or Battery Backup Systems

Uninterruptible Power Supplies (UPS) protect your computer from all seven of the above power problems. The UPS battery is always “On”, and it’s always charging at a slightly higher rate than the computer uses. The incoming power is monitored for the seven conditions, and the UPS automatically adjusts its power output to always be a smooth power level at about 110 volts.

In the event of complete power loss, the unit switches to battery-only mode in milliseconds. It then supplies power for a certain length of time based on the size and capacity of the batteries. If the outage exceeds the battery capacity, it also has a circuit that tells the computer to shut down automatically before damage occurs.

What Size UPS should I purchase, and what UPS features should I look for?

UPS’s are rated by a measure of power called Volt-Amps (Watts) or “VA”. This measure is used to indicate how long the UPS can keep your PC running in the event of power loss. UPS’s typically have an additional feature to send a signal to the computer that tells it to shut down properly before the battery is exhausted.

For example, a typical home computer with a 19” flat screen is rated at about 300 watts of power*, but actually uses about 60% of what the label states, or 180 watts. If you purchase a 500VA UPS, it will only provide a few minutes of runtime before the computer will be shut down. This is fine if you would likely shut down anyway. If you need to work a bit longer, you could opt for a UPS in the 1000VA range. A 1000VA UPS can keep the same computer running up to 23 minutes or more. Below is a chart of typical runtimes based on computer power use:

Computer Power Use (Watts)*	500VA	700VA	1000VA	1500VA
Typical home PC Rated: 300 Watts, Actual: ~180 Watts	6 minutes	10 minutes	23 minutes	29 minutes
Typical business PC Rated: 450 Watts, Actual ~270 Watts	3 minutes	6 minutes	17 minutes	20 minutes
Gaming or CAD workstation PC Rated: 600 Watts, Actual ~360 Watts	Not recommended	3 minutes	10 minutes	14 minutes

*Typically the rating on the label is overstated. Volts (110) x Amps (2.74) x 60% = 180Watts

UPS backup units are not just for computers:

I have found that connecting other electronic devices to a UPS has many benefits. For example, your DSL or Cable Modem will be much more stable and keep the internet connection up and running during a power outage**. Another device that benefits from a UPS is your flat-screen TV and Stereo equipment. Flat screens and newer digital stereos are more susceptible to power fluctuations than their analog predecessors, and you won’t lose your saved channels or setting preferences. Typically, any UPS that is between 350 and 500VA will do the job nicely. But check the power consumption label on the back of the device or the owner’s manual just to be sure.

** *Unless the connection itself is down due to cable cut, downed trees, or other physical damage.*

Conclusion:

Even if you have no noticeable power problems, get a UPS to protect your computers and electronics. It’s a fundamental step that protects your expensive equipment and your priceless data. If you don’t have power protection, you need it! Call me for recommendations on proper sizing or more advanced options and strategies.

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