



Uninterruptible power supplies help computers

How many times have you been diligently working at your computer on some important paper or project when suddenly there is a momentary interruption in your electric service? If it's happened more than a few times and the result was the loss of information or time, your frustration level with Duck River Electric has probably climbed to the point of wondering if your cooperative has any concern about the reliability of your electricity.



"How on earth can this keep happening to me?" you probably asked. But more importantly, you were asking, "How can I keep this from happening again?"

Despite the fact that DREMC spends millions of dollars each year improving and upgrading electric distribution facilities, there are numerous causes of temporary and extended power outages caused by circumstances beyond the cooperative's control, including snakes, squirrels, birds and other animals; trees or limbs touching or breaking down power lines; vehicle accidents, weather, equipment failure ... the list goes on. These momentary interruptions, or "blinks," you experience are the electric distribution system's way of dealing with these incidents. These "blinks" are actually designed into the electric system as the way to avoid extended (e.g. an hour or more) power outages that the incidents would have caused had the "blink" not occurred.

Fortunately, the electronics industry has recognized the need for some type of device that maintains current flow to sensitive electronic equipment in the event of a momentary or extended power outage. And as the demand for these devices, commonly referred to as uninterruptible power supplies (UPS), has increased, manufacturers have made them more user-friendly, and the price has dropped.

According to information compiled by Nick Christenson and posted on the World Wide Web at <http://www.jetcafe.org/~npc/doc/ups-faq.html>, there are basically three different types of devices:

1. Standby power supply (SPS) — Power is usually derived directly from the primary power line until there is a failure. At power failure a battery-powered inverter turns on to continue supplying power until normal electric service is restored or the battery runs down. There is a lapse between the time the primary electric current stops flowing and the battery-powered inverter turns on. Most manufacturers

advertise this delay as being around four to 12 milliseconds. Many computer manufacturers indicate their equipment will continue to run for 100 milliseconds, but there is no guarantee that with this type of stand-by system, there will be no loss of data or damage to equipment. This is the least-expensive stand-by power system.

2. Hybrid UPS system — When normal operating line power is present, the hybrid

system conditions power using a ferroresonant transformer. This transformer maintains a constant output voltage even with a varying input voltage and provides protection against line noise. The "switchover" time of this type of device is said to be seamless. This type of system is more expensive to purchase.

3. True UPS system — Equipment plugged into this device continuously operates from an inverter powered by a battery that is charged by the primary line current. This system is often referred to as an "online" UPS. As expected, this unit is generally the most expensive of the three types, depending upon the battery capacity and run time.

One of the most important features of any UPS system is its capacity. Another is its run time. The run time is the number of minutes that the UPS will be able to provide power from the battery for a given amount of connected electrical load. More equipment requires more power to be drawn from the battery; thus the run time is reduced. With their various models of equipment, most UPS manufacturers provide tables that show the typical run times based on the amount of connected electrical load.

The popular Web site eHow.com recommends several steps to consider when choosing an uninterruptible power supply:

1. If you have a limited budget, choose a standby UPS that switches to battery power when power goes out.
2. Choose an "on-line" UPS if you need unlimited backup power.
3. Select a "line-interactive" or hybrid UPS if your needs fall between the other two types.
4. Determine the total power needs (in watts and volt-amperes) of equipment you will connect to the UPS.

(Continued on page 20)



New employees



Jeremy Parker joined Duck River Electric in the Shelbyville District on Oct. 16 as an apprentice equipment technician. Parker is a graduate of Shelbyville Central High School and attended the Tennessee Vocational School to study industrial maintenance. He was previously employed at Calsonic. Parker and wife Denise are the parents of Justin and Andrew and reside in the Flat Creek community of Bedford County.



Maurice Ragland joined Duck River Electric in the Decherd District in October as an apprentice lineman. Ragland is a graduate of North Jackson High School in Stevenson, Ala. He was previously employed with Dillard Smith Construction. Ragland is the father of sons Ridge and Tyrece and resides in Stevenson, Ala.

Power supplies

(Continued from page 17)

5. Choose a UPS that equals or exceeds the total power requirements of the equipment that you'll connect to it.
6. Compare the following five specifications for different models: maximum surge current (expressed in amps — more is better), surge suppression (expressed in joules — more is better), suppression response time (faster is better), battery recharge time (faster is better) and number of AC outlets (more is better).
7. Find out if the unit under consideration has a replaceable battery and if the battery is user-replaceable.
8. Compare battery operating times (how long the UPS will keep equipment running after power failure).
9. Look for a unit with modem surge protection and electromagnetic interference (EMI) and radio-frequency interference (RFI) noise reduction if you need those features.
10. Check for alarms or LEDs that indicate wiring problems, whether the equipment is running on UPS battery and whether the battery is low.
11. If you are buying a more expensive unit, get one with software that automatically saves documents, closes software applications and turns off equipment when power goes out.
12. Compare warranties and insurance guarantees.

Based on limited research and checking with numerous mass merchandising outlets and online vendors, it appears the prices for UPS systems range from somewhere around \$39 to a few hundred dollars, depending on the type of system, its capacity and run time. The \$39 unit (CyberPower 425SL) is of the stand-by power supply variety and will allow a limited amount of computer equipment to run anywhere from six to 22 minutes. This particular unit, however, does include software that, according to the maker of the device, will save open files and shut the computer down when primary power is lost.

As prices increase incrementally, the type of UPS unit changes as well as their capacity and run times. As you consider the recommended steps in choosing which UPS system will serve your needs, you may want to check some of the online sites such as www.tigerdirect.com, www.APC.com, www.Walmart.com, www.cdw.com or others you are familiar with to research price and availability.

DREMC MANAGEMENT AND STAFF

Jim Allison, General Manager

Jim Martin, Director of Financial Services

Blake Butler, Director of Engineering

Charles McDonald, Director of Member Services

Michael Watson, Director of Operations

DREMC Office Hours —

Monday through Friday, 8 a.m.-5 p.m.

Shelbyville Office

Larry Wells, District Manager

Phone: 684-4621

After Hours, Holidays, Weekends: 684-4623

Lynchburg Office

Eugene Cartwright, Area Manager

Phone: 759-7344

After Hours, Holidays, Weekends: 759-7371

Decherd Office

Bill Elliott, District Manager

Phone: 967-5578

After Hours, Holidays, Weekends: 967-5579

Sewanee Office

Lee Wayne Pettes, Area Manager

Phone: 598-5228

After Hours, Holidays, Weekends: 967-5579

Lewisburg Office

Ronald Aldridge, District Manager

Phone: 359-2536

After Hours, Holidays, Weekends: 359-2537

Columbia Office

Michael Trew, District Manager

Phone: 388-3131

After Hours, Holidays, Weekends: 388-3482

Manchester Office

David Young, District Manager

Phone: 728-7547

After Hours, Holidays, Weekends: 728-7548

DREMC Co-op News Editor

Ann Throneberry

P.O. Box 89

Shelbyville, TN 37162-0089

Phone: 680-5884

DREMC BOARD OF DIRECTORS

Brent Willis, President

Coffee County

Buford Jennings, Vice President

Moore, Lincoln counties

Bill Randolph, Secretary-Treasurer

Giles County

Terry Holder, Franklin, Grundy, Marion

counties

Philip Duncan, Franklin, Grundy, Marion

counties

Laura L. Willis, University of the South

Bob Dubois, Maury, Hickman, Lawrence,

Lewis, Williamson counties

Dwight Fox, Maury, Hickman, Lawrence, Lewis,

Williamson counties

John Moses, Marshall County

Kenneth Stacey, Marshall County

Mike England, Coffee County

Glenn Norfleet, Coffee County

Bobby Vannatta, Bedford, Rutherford counties

Barry Cooper, Bedford, Rutherford counties

Web site: www.dremc.com