

# Improving power quality

Power-related issues are frequently the cause of time outs, unexplained downtime and other commonplace system or networking glitches. In fact, blue screens, system freezes and logic errors are more often caused by power supply quality problems than by virus, spyware and other malware according to data gathered by SmartPower Systems Inc. of Houston, TX. The company markets a range of uninterruptible power supply (UPS) with transformer based filtering (TBF) products to provide "computer grade" power.

According to a Bell Laboratories study, 82.2 percent of power-related issues stemmed from surges of less than 200 volts while a similar study by IBM upped that number to 87.5 percent. While these events are usually not disastrous, they generate all kinds of mischief, consume end user time, result in data loss and generate a torrent of help desk traffic, according to SmartPower. Meanwhile, blackouts cause only 1.4 percent and 0.5 percent of computing power problems according to Bell Labs and IBM respectively.

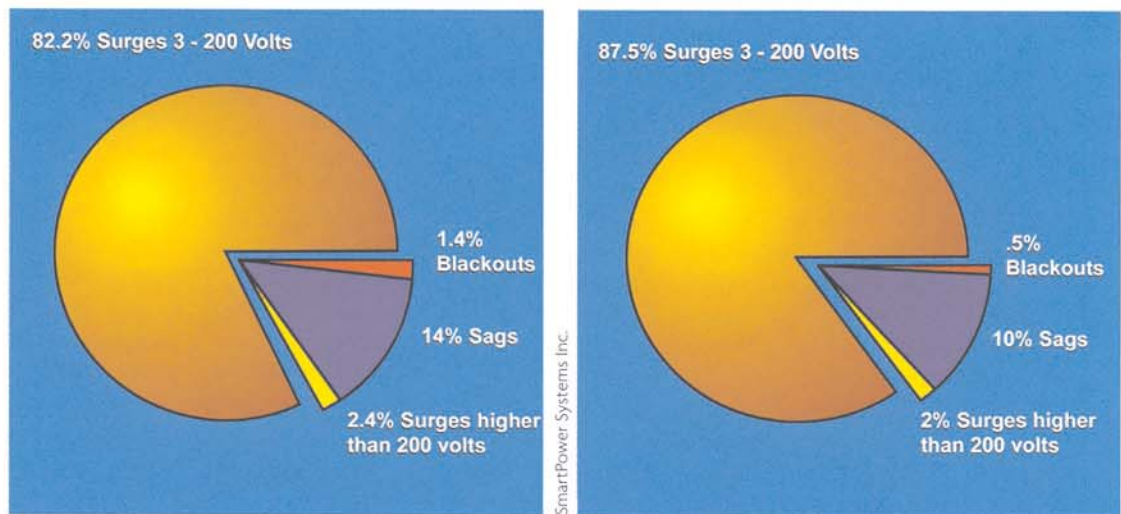
"Power problems caused by small surges, spikes and sags in the electricity supply cause 15 times more problems today than viruses," a recent company report attributes to SmartPower CEO Bahram Mechanic. "Servers, workstations and networking gear can best be

protected by using transformer-based filters. Whereas old style power conditioners were large and expensive, a new breed of inexpensive electronic power conditioner is being deployed today in the computer room."

While your systems are likely protected against lightning flashes or blackouts that can damage power supplies and cause PC board blowouts and other catastrophic

an excellent way to filter out larger and the small (down to less than 0.5 volts) spikes, but notes that they are heavier and more expensive than more modern alternatives.

Transformer-based filtering (TBF) devices, also called electronic power conditioners, are described as providing "computer grade" power at the same price as limited-function surge protectors and a fraction of the price, weight and size of isolation



Two major studies of power quality, one by Bell Labs and the other by IBM, show strikingly similar results: That blackouts and large surges only make up a small percentage of power quality problems. On the other hand, 80 to 90 percent are caused by low voltage surges that cause networking problems such as logic confusion, system errors and frozen screens.

issues, they may still be unprotected against the far more common tiny surges that occur from "noise" between the hot or neutral wire and the ground wire.

According to SmartPower, surge suppressors or surge protectors fail to handle these relatively small over- and under-voltage.

Isolation transformers, also known as line conditioners, change one voltage to another to prevent the electrical current from flowing directly from one side of a circuit to the other. The company sees these as

transformers. TBF devices, such as those sold by SmartPower, include transistors, thyristors, capacitors and relays to handle power conditioning duties in tandem with a small transformer. This digital circuitry is said to provide greater functionality than a traditional line conditioner/isolation transformer.

SmartPower also notes that UPS devices with TBF units are smaller, lighter and about half the price of a comparable UPS with line conditioner unit. **CM**