

Manufacturing Innovation Insider Newsletter

Going the Extra Mile to Keep Kiosk and ATM Systems Running

To maintain up-time and reduce servicing, the latest generation of electronic power conditioners add kiosk-specific and "watch dog" software applications to guard data in case of power failure or lockups.

In the race to deliver 100% reliability for kiosk and ATM applications, every integrator, VAR, and in-house system operator knows that power is everything. With the same consequences of a team member dropping the baton in a 440-yard relay, the momentary interruption of line voltage often leads to irreparable damage that only a site visit and rebooting can restore. When the interruption strikes mission critical applications like banking and retail operations, further damage control is called for as vendor credibility becomes jeopardized.

To prevent such catastrophes, resellers and network administrators are turning to a new option: digital UPS units that not only provide "computer grade" power, but possess the intelligence, during the absence of an operator, to safely close down a running application in case of an unexpected power failure; thus preserving valuable data. The fact that recent innovations have now brought the price of these power-conditioning UPS units to below that of older UPSs and isolation transformers means that dealers and integrators can cost-effectively reduce unnecessary service calls while increasing customer satisfaction.

"A happy customer is your best customer; they will come back and purchase more when they have a good experience with your system," confirms Fred Newtz, IT Director for Horizon USA of Houston, Texas—one of the nation's largest, most innovative designers of interactive kiosks.

The danger of "dirty" power

In few other markets do electrical malfunctions immediately mandate emergency action than in kiosk and ATM applications. Banks, in particular, are un-



The UPS from SmartPower offers software that is specifically designed to handle critical ATM and other kiosk applications.

derstandably very concerned about having clean power to their machines so that mistakes are not made in dispensing hard cash.

The quest for clean power, AKA "computer grade" power, is borne out by the experience of service techs who have rushed out to handle a system crash, only to discover that the trouble-shooting results in "no problem found."

"We have had the experience of wasting many man-hours while changing out hardware that would suddenly work when it came back to the shop," notes Horizon's Newtz.

While damage caused by a large power spike, such as a lightning strike, is easy to identify, the insidious effects of power surges (less than 200 volts) prove far more difficult to pinpoint. Yet, according to studies by well-known manufacturers and independent labs, 87% of power-related failures result from low-voltage surges that cause logic confusion; yield-

ing system errors and frozen screens.

Unstable line power oftentimes stems from poor wiring in old buildings. Yet, even new buildings can suffer from the immediate effects of power surges and sags from line-voltage variations within the building, such as when an HVAC system cycles on and off.

“We place a big percentage of our units in large retail environments and the power there is notoriously dirty,” says Newtz. “You never can tell what else is hooked into the circuit, so sometimes we run into problems that are extremely hard to track down.”

Challenges in preventing the problem

In the past, standard surge protectors and higher priced power filters have been used to protect against high-voltage spikes. However, these devices are not intelligent enough to handle the relatively small spikes and over-voltages that momentarily disrupt sensitive electronic equipment. While isolation transformers (ITs)—a traditional choice by some technicians—have been available to help avoid power surges, they are prohibitively expensive and unwieldy in size and weight for the tight spatial constraints of most kiosk and ATM applications. In addition, UPSs have traditionally lacked the ability to safely close down an open application before they run out of power. No one device could cover all the bases.

A new option for kiosk and ATM protection

Recent technological advancements in the field of power conditioning have now yielded devices that provide computer grade power—a clean, filtered power supply to the protected equipment—at the same price as limited-function surge protectors or filters and traditional UPSs. Known as transformer based filtering (TBF) devices, their protective feature set is such that some VARs have already recognized the benefits and started installing these new electronic power conditioners, with some models known by trade names such as “Smart Cord.”

More importantly, newly developed TBF-equipped UPSs offer a USB port and “watch dog”

software that has the unique capability to reboot the program which is locked up, without restarting other open programs, to safely preserve the data.

“We had been using a Tripp Lite unit for many of our customers, but now that the SmartPower UPSs have new software that allows us to monitor and protect specific software packages, well that sealed the deal,” says Horizon’s Newtz.

Located in Houston, Texas, SmartPower Systems has traditionally been an innovator of hi-performance electronic power conditioning and UPS products for the mission critical market. But in 2002, SmartPower developed a new “smart” electronic circuit and patented the third generation of its “TBF with Smart Ground” for digital technology that creates electronic power conditioners with more features—such as prolonged over-voltage protection—at a cost considerably less than that of an isolation transformer (IT). SmartPower is also the innovator of the WatchDog™ program that can safely close down an open kiosk or ATM system application and safely keep and protect the data in open programs.

A 2005 report prepared by PowerCET®—a power quality consulting, education and training firm based in Santa Clara, California—on behalf of SmartPower, discusses the testing of TBF technology versus ITs by applying IEEE C.62.41 surges of 3000 volts. The results showed that TBF surge attenuation on common mode was less than 0.5 volts, the same as an IT.

These results placed the TBF units in the “power conditioning” category, yet the TBF units cost much less and take up a smaller footprint than an IT. The smart electronic circuits explain why TBF is referred to as “electronic” power conditioning, versus the electric circuits found in an IT.

TBF circuitry also addresses a particularly perplexing problem in many kiosk and ATM installations: that of ground loop current, which can create havoc in sensitive microprocessors of unprotected equipment. To eliminate this risk, the Smart Ground™ circuitry within SmartPower’s TBF units includes an impedance matcher that eliminates ground loop current and

voltage differential.

Winning the race for maximum up-time

Crossing the wire first are those kiosk and ATM resellers who have embraced some of these innovations.

“SmartPower’s UPSs reduced a good percentage of calls from customers who were previously calling us with problems almost weekly,” says Newtz. “The line-condition indicator is a very important part of the solution, but the software they designed really puts their product over the top. We are in the testing phase now and finding that it is cutting back on service calls that just required a reboot of the system.”

The competitive cost of these new devices has prompted early adoption on that attribute alone. One Canadian reseller of systems for ATMs reports installing over three thousand TBF units to a bank, mainly because these units did the job at a price that the bank was willing to pay.

As TBF units prove their value in reducing service calls and increasing customer satisfaction, some dealers choose to absorb the small cost of including them in every installation.

“Hands down, I would not recommend any other UPS manufacturer for kiosk applications,” sums up Horizon’s Newtz.

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