

Getting Competitive Advantage from Power Protection Products

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The Office Products industry has gone from being a simple hardware provider, producing black and white copies, to a one-stop, digitally integrated document solutions provider.

During this turbulent and exciting metamorphosis there have been many wrong turns. Manufacturers have expounded on emergent and untested technologies which have too frequently been dead-ends and have cost the industry untold millions in resources and equipment write-offs. Understandably many dealers have become cautious when embracing new technology.

What has not changed is the Office Products industry's ability to expand. In fact the industry has accelerated in its revenue generating opportunities. Color has replaced black and white, and document imaging retention is now commonplace on many OEM products. The products now offer so many capabilities that it is hard to keep up with the features and benefits.

Another aspect which has not changed is the importance of recurring revenues from services and supplies. Margins continue to be squeezed in this area, frequently caused by OEM direct operations, so it is even more important to ensure that equipment service is really needed, either due to scheduled service, or specific equipment failures. What the industry does **NOT** need are complex machines failing due to inexplicable events, called "anomalies".

"Anomalies" are events which cause repeated service calls for phantom problems, causing loaner machines to be placed while the offending product is troubleshot in the shop, or causing even more expensive "in field" even exchange equipment replacements, while the dealer fights with their vendor for remuneration, or in the worst case scenario the loss of a customer. "We don't care, we will not take that machine back" is often heard from the customer. Dealers ignore this demand at their peril.

The 'hidden' culprit here could well be the power line! For small and large commercial, as well as residential customers, one can measure between 30-100 power disturbances per year that are outside the design specification of the machine! Machine lockouts and even damage can result, with extensive downtime and nasty-grams being exchanged between all concerned. Based on the experience of some of the larger business machine distributors, analysis of field-failures and compromised system reliability leaves significant unexplained gaps. These machine failures have frequently been blamed on ghosts, gremlins and other phantom failures, all supposedly manifestations of the dreaded 'voltage surge'! So much so, that this 'fear' has resulted in the creation of a \$2 Billion/year global market in surge protection devices – yet failures continue! In today's data-driven world, it is amazing that no one asks about actual measured data on power disturbances, and that none of the existing surge protection device manufacturers offer such corroboration. However, without real data on the cause of these 'phantom' events, dealers have been caught between the proverbial 'rock and a hard place!'

Open-sources of information such as www.i-grid.com provide unbiased and detailed information on power disturbances measured across the US. This data, several publications in refereed journals, and independent testing by the Electric Power Research Institute, have validated that voltage sags represent the most common power disturbance on the grid, followed by over-voltage events. Voltage surges are rare, typically constituting less than 1% of the power disturbances that are experienced at end-customer locations. Less than 10% of the disturbances are over-voltage events, with the balance ~90% being short-duration voltage sags. Peer reviewed research and independent third party testing has confirmed that voltage and current surges associated with such power disturbances can cause degradation and damage to power supplies within most types of electronics equipment. Conventional voltage surge protectors thus only protect against 1% of the

power disturbances experienced at the point of end-use. Further, no surge manufacturer provides the end-user with statistical and diagnostic information on power disturbances experienced in the field. This is classical FUD marketing – based on ‘Fear, Uncertainty and Doubt’.

An opportunity exists to redefine the interface between the power grid and the machine. This interface device can function in the role of ‘power manager’, protecting the machine from virtually all types of power disturbances that occur on the grid. This would help to reduce anomalies, phantom failures and unexplained equipment damage, and would reduce spurious claims – adding to the bottom line. However, if this is all that were accomplished, one would leave a lot of potential value unrealized.

Integrating intelligence and communications into these **‘Power-Managers’** can completely alter the paradigm, creating new opportunities for value-added service and enhanced customer-stickiness. Rapidly declining costs for microprocessors and communications technology, a result of Moore’s Law, now allows advanced data capture, diagnostics and connectivity – all at modest cost. The advent of low-cost microcontrollers and communication chip-sets that support Zigbee communications protocol, allows the creation of smart devices that can be networked together. It is interesting to consider how such smart devices could add value to the customer, and add to the vendor’s top and bottom line.

Advanced diagnostics that provide a detailed time-stamped record of power disturbances can provide a historical record of the grid voltage at individual sites, and show correlation with equipment malfunction – avoiding spurious claims arising from phantom failures. Energy costs can represent a large component of total cost of ownership for office machines. Recording energy consumption patterns and profiles for each machine can allow end-users to fine-tune their operating schedules, to select machines that are more efficient (what gets measured gets improved!), and to realize significant reduction in

energy costs. It should be noted that every watt saved in the machine, results in an additional 1-2 watts of savings in air conditioning losses. Energy savings can thus provide fast payback for additional services or sales that are provided to the customer.

These services can include quarterly reports on machine uptime, energy consumption, and total cost of ownership. Suggestions on possible improvements can further enhance the value to the customer. Ultimately, the machines will be networked, providing automatic summary and ‘action’ reports, so that the service infrastructure can be made leaner and more cost-effective, realizing operational savings. The ‘green’ image that comes from leading the charge on energy-efficiency and reduced carbon footprint is also well aligned with societal and industry-wide imperatives.

The movement towards smarter and communications enabled ‘power-manager’ devices is inevitable. It is surprising that the power-protection industry continues to provide low-tech solutions that have not changed in over 25 years, and have chosen to keep their customers ‘in-the-dark’ about the type of power disturbances that can affect equipment. There is no excuse for the level of confusion and misinformation that exists in the power protection market today. It is time to apply the current state-of-the-art in technology to create solutions that provide real protection, that provide data to customers so they can make reasonable and rational decisions, and that do not cost thousands of dollars!

To learn more about how to go about implementing such solutions, contact www.innovolt.com for more information. **Innovolt’s** line of **‘Power Manager’** products completely redefines the role of power protection, using patent-pending technology to provide the best-of-class protection, and using diagnostics and energy monitoring to provide new value-streams to vendors and customers alike.