The Value of Surge Protection For Your Surveillance System

In Multiple Sectors

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At first glance, warehouses, sports stadiums, data centers, convenience stores and healthcare facilities may not have much in common. Yet, they all house expensive equipment, including security equipment, that is at risk due to power surges that can damage, degrade or destroy that equipment, and result in downtime and financial losses. While insurance may cover the cost of repairing material damage to a security system, the downtime is often not covered by insurance and can quickly surpass the cost of surge protection devices or the cost of the damaged equipment.

The protection provided by a surge protector on a security system and its devices is essential to protect and to lengthen the life of a physical security system. Surge protection needs to be an integral element of the planning and design of a security system and not just an afterthought. It's also key to choose the right surge protection that will not only deliver the right level of electrical absorption to handle regular spikes and surges, but will also work for specific situations and sector requirements.

Warehouses

Many businesses that need to keep a large array of merchandise on hand maintain and operate immense warehouses with significant infrastructure requirements. For many warehouses, refrigeration is an essential function to keep produce and other fragile products fresh. With advanced refrigeration technology these devices now have a great deal of complex operability—some can maintain temperature to a tenth of a degree, allowing storage of much more delicate products, and many are now networked to enable remote management and monitoring.

While this new functionality brings convenience and efficiency to users, it also increases the possibility of a surge event that can damage large amounts of merchandise. Surge events have historically damaged any device connected to the electrical grid, but the relative isolation of refrigeration equipment on the network has protected it from surges affecting other parts of a warehouse. As the use of network-enabled refrigeration equipment grows, so does the likelihood of surge damage being transferred from other devices to this essential infrastructure.

Surge damage to refrigeration equipment can take a number of different forms. Although the refrigeration capability may still be present, remote control of the device or internal temperature monitoring may no longer be functional, resulting in damage to refrigerated merchandise as temperatures fluctuate without operator knowledge. In the event of a more powerful surge, the entire device could be badly damaged or even destroyed entirely, necessitating its replacement and possibly the replacement of all of the goods it contained.

Power surges can come from within a facility as well as from outside through a lightning strike, so it is essential to protect each individual device, especially connected devices such as smart refrigeration.

Electrical equipment can generate power surges that then transfer to other devices on the same network, which causes damage similar to a surge caused by a lightning strike or other external electrical fluctuation. Surge protection should be installed at the refrigeration equipment itself as well as at any cables that run between the inside and outside of a facility.

To protect temperature-sensitive goods and equipment, it is essential to keep refrigeration equipment functional. Installing surge protection throughout a warehouse and on refrigeration equipment can help you prevent a costly meltdown.

Sports Stadiums

Sports stadiums and other event venues are complex facilities, featuring a myriad of systems that all must work in tandem during concerts, sporting events, conventions and large-scale public gatherings. A stadium needs lighting systems, security, POS, ticket collection, video displays and many other systems to function optimally and continually. A power surge that damages electronic systems is dangerous for these systems, causing downtime or even destruction of equipment.

Should one of these systems go down, issues are created beyond the loss of the system functionality. A POS system not functioning during an event means that sales cannot go through, resulting in financial losses from concessions and merchandise. Should ticket collection mechanisms not properly function, tickets could be counted inaccurately, resulting in unauthorized persons sneaking into an event or authorized persons not being granted access.

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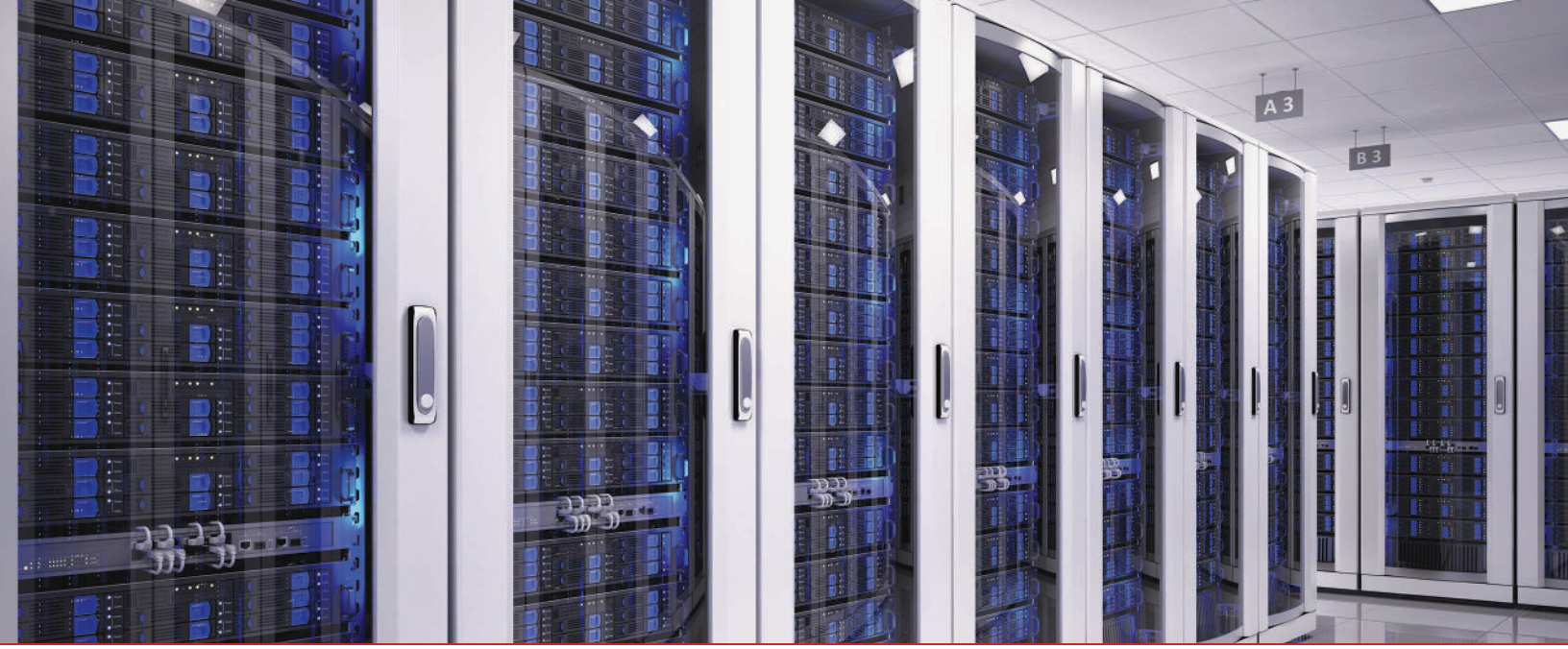

A very public display of stadiums systems suddenly becoming nonfunctional took place at the 2013 Super Bowl in the New Orleans Superdome, when a partial power outage stopped the lighting from functioning during the nighttime game, stopping play for 34 minutes. A newly installed relay tripped, resulting in the power outage, during which only emergency lighting functioned. The incident showed the stadium's inability to cope and the city's inability to plan.

As stadiums may host a variety of different events, there are diverse risks with systems not operating. A stadium hosting a hockey game needs to keep the ice constantly cooled, while a concert requires electronic microphones and amps to broadcast the artist's music, as well as plotting complex lighting and pyrotechnics that could become dangerous if improperly set off.

And with any system downtime, security is at risk. Without security cameras to monitor situations, security officers cannot properly respond to incidents, and it is much easier for unauthorized persons to enter sensitive areas or bring restricted items into the stadium.

The correct surge protection is essential to prevent damaging surges from creating security events in a stadium environment. Most surges in a stadium environment are internally generated, caused by the large electronics needed to properly run such a large venue, including HVAC and power generators. These large surges can then be distributed to smaller devices such as cameras and POS.

In determining the precise surge protection to protect stadium systems, it's essential to consider each system individually as well as the stadium as a whole. Ensuring that there is surge protection on individual electronics and larger machinery can help protect smaller devices from larger surges.

In a stadium or event venue, many systems of electronics come together to create a singular experience for attendees, and protecting the systems in the event of a surge requires implementing the correct surge protection products.

Data Centers

With the advent of cloud technology, data centers are increasingly used to house greater amounts of precious data, from iPhone photos to national security information. For any organization that uses digital technology, data centers are a critical element of business operations. While some organizations choose to maintain their storage in house, more often data centers are separate facilities, housing hundreds or thousands of servers for multiple businesses.

Maintaining uptime is a foundational function of any data center—ensuring that all organizations who house valuable data in their servers maintain constant access and that none of the data is lost, changed, accessed, or stolen.

Data centers also require constant protection from downtime. Any issue with the functioning of the servers or the physical and cybersecurity that protects them opens a data center to liability—from thieves breaking into the facility itself, loss of data on the servers, or surge events that cause damage to essential infrastructure. Installing surge protection on critical systems for data centers can help to manage some of the risk.

Even more, installing an uninterruptible power supply (UPS) can help mitigate

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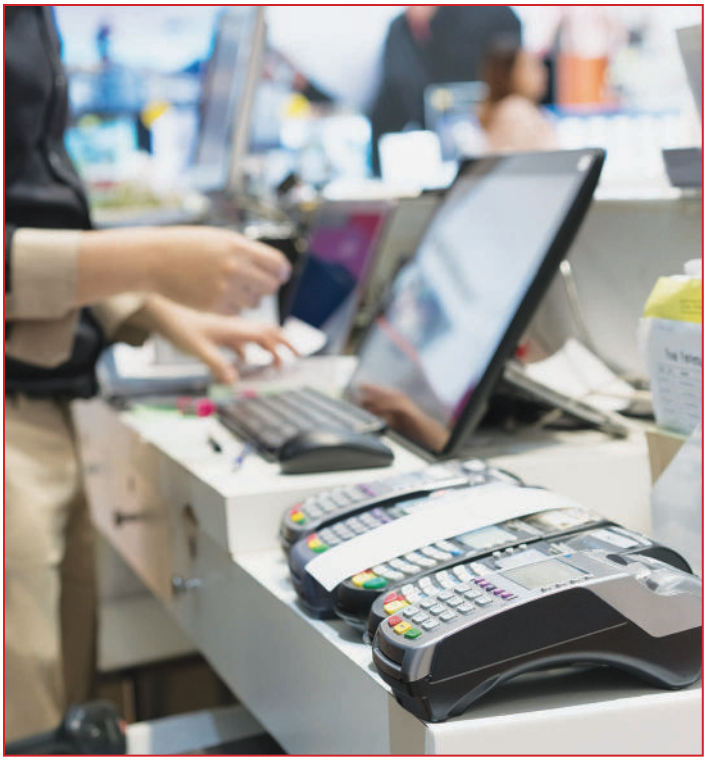

one of the most dangerous risks to a data center—that a loss of power will take down servers. A UPS installed on the system safeguards that power is maintained during an unforeseen power disruption, and that data is not lost or corrupted.

Several types of UPS's are available on the market, including standby and interactive battery backups; but for data centers, the most functional battery backup is an online UPS. A lower grade UPS doesn't isolate a power supply well enough to protect critical data center servers from damage or corruption, while an online UPS supplies power from the battery directly to connected devices, converting outside power to battery power to ensure systems are protected when other power events disrupt the power supply.

Keeping data available, safe and uncorrupted is the paramount mission statement of a data center. Surge events can easily disrupt this essential functionality and create liability issues, corrupt data, or even damage the servers themselves. Keeping an online UPS on a data center's critical systems can help to ensure the consistent protection of the facility and its contents.

Convenience Stores

The risk of damage caused by electrical surges is familiar to anyone working in the convenience store industry. With electrical devices installed both indoors and outdoors throughout a location, the chance is high that an electrical surge will affect one or more devices. Video surveillance and security, AC power devices, POS and pay-at-pump machinery are only some of the vulnerable points at which a convenience store or truck stop might be affected by an electrical surge.

Smaller, less obvious internal surges account for most of the surge damage done to electrical devices, and often are caused by basic usage—for example, turning on another power source such as HVAC on the same grid can cause power fluctuations that may damage equipment.

In addition, the advent of the Internet of Things has led to an influx of interconnected devices that share a single network. With these networked devices, the chance that a surge at one point on the grid will affect other equipment is even higher. A single lightning strike can destroy the device it strikes and then travel along the power supply, damaging or destroying expensive equipment and causing costly downtime.

Security cameras, intercom systems, electronic safes, pump controllers, ice boxes and mechanical signs are just some of the devices that could be easily damaged by surges.

All of these are expensive to replace, and having to repair or replace them would necessitate downtime for a business. Low-cost, easily changed, rugged surge protectors can help ensure that important equipment remains functioning in the event of a surge, and that power fluctuations do not cause unnecessary wear and tear.

Adding surge protection on all of essential devices helps to protect them from surges and prevent them from disseminating surges along their network. To ensure proper protection, surge protectors should be installed between devices, as well as at each device, to prevent surges both from damaging equipment and from travelling between devices.

Healthcare

From heartrate monitors to medication pumps, much of what keeps patients alive and healthy in hospitals is dependent on a steady flow of power. However, there are other critical systems in healthcare facilities that require the highest level of protection from power disruptions as well—video surveillance and access control systems. Should these stop functioning, the results could be catastrophic or even fatal. It is essential in healthcare facilities to protect the systems from damaging power spikes and surges.

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The most obvious outcome of a video surveillance system not operating is the potential loss of video data. However, there are other possible outcomes that are far more damaging. Video surveillance cameras going offline due to a surge event could result in a hospital missing vital footage of a patient wandering into an unauthorized area or harming themselves.

Downtime on access control systems presents a similar risk—without proper access control, hazardous equipment or high-security areas like neonatal wards or drug closets containing controlled medications may be freely accessible. It's essential that surveillance, access control and other security systems remain online at all times. Surge protection can help ensure that these critical systems avoid downtime.

Loss of critical video surveillance and access control systems can create tremendous liabilities for hospitals in addition to the danger it presents for patient care. If these systems go offline, other security functions may also cease to function properly. In healthcare facilities with maternity wards, for example, a variety of access control and other electronic solutions exist to protect newborns from abduction. Should these systems go down due to a surge, newborns may suddenly be at risk, additionally creating a liability risk to the facility. If a newborn is abducted, a lack of video surveillance data around the time of the incident greatly magnifies the severity of both the catastrophe and the liability. All of this can be prevented by making sure these systems remain up and running in the event of a damaging power surge.

As more services move to the cloud and devices join the network, the risk of damaging surges migrating to other parts of a facility increases. When all devices are networked across systems, a surge could move from a surveillance camera, for example, through a digital network to a device on another system. Putting surge protection in place on these devices, and especially at locations where the network moves from outside the facility to the inside, can help prevent surges from spreading across a network and damaging or destroying multiple devices or systems.

Healthcare facilities need to be able to keep all of their systems up and running. Protecting video surveillance and access control from damaging power events with surge protection can help to protect a facility, its employees and its patients.

Conclusion

There is no such thing as a facility or organization that is free from the risk of power surges or lightning strikes. Sudden, severe voltage surges like those from lightning can cause almost immediate and total failure of security equipment. However, even small power voltage surges can deteriorate sensitive circuitry over an extended period of time.

For every type of organization, whether it's a sports stadium, warehouse, hospital, convenience store or a data center, the cost of surge protection for essential security systems is an intelligent investment that delivers tangible ROI by protecting from power surges and lightning strikes and avoiding costly downtime. Incorporating surge protection into a facility is easy and affordable, and is the best way to ensure that security equipment is safe.

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