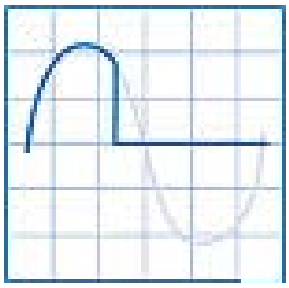
WHITE PAPER

Protecting Digital Signage Systems from Power Problems

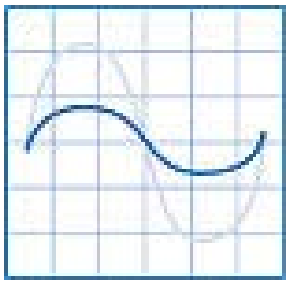
Executive Summary

The digital signage market is experiencing rapid growth. Organizations across a wide range of industries are making large investments in the content, source machinery and displays that comprise digital signage systems. The choice to protect these investments from power problems is crucial—yet frequently overlooked.

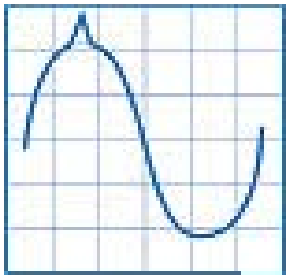
By leaving digital signage players, displays and software vulnerable to power surges and outages, purchasers risk losing large investments in these systems.



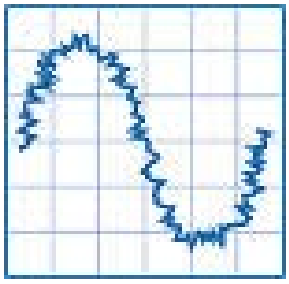
PROBLEM: Blackout (complete loss of power)



PROBLEM: Brownout (low voltage conditions)



PROBLEM: Surge/Spike (voltage increase from lightning, etc.)



PROBLEM: EMI/RFI (noise from appliances, etc.)

In today's expanding discussions surrounding digital signage, contributors are placing significant attention on the numerous ways in which digital signage can serve and increase revenue across a wide breadth of industries. The worldwide market for digital signage is expected to reach $15 billion by 2020. Prominent independent consultant Lyle Bunn notes that digital signage is enjoying widespread adoption:

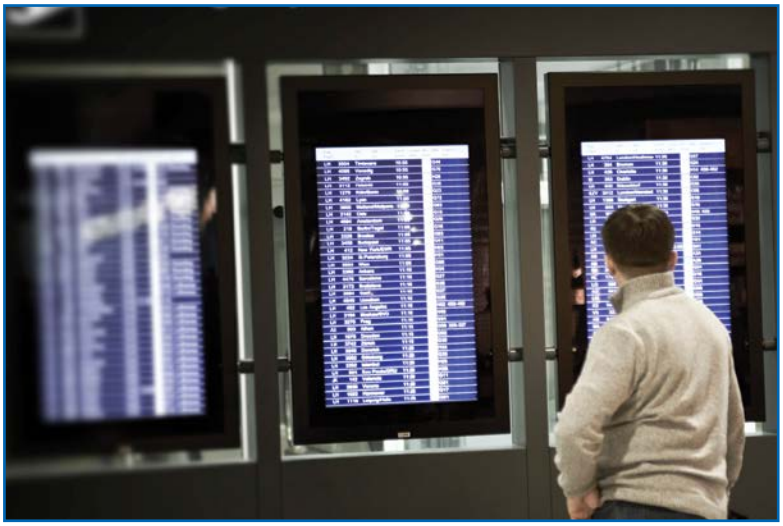
> "So the question is not whether or not an end-user or supplier organization will engage with digital signage ... but 'how.'… End-users will lose revenue and patrons to competitors that use the medium, or will enjoy the benefits of more effective communications spending, meeting the information needs of target audiences…. the effectiveness of digital signage as a communications device is being proven across a wide spectrum of projects."

The inherent opportunities in this industry-wide growth highlight an essential need: with more than one billion dollars being spent annually on digital signage devices, power protection for those devices is a crucial necessity. By leaving their digital signage source players, displays and software vulnerable to power surges and outages, purchasers risk losing their entire investments in these systems.

To appreciate the gravity of the risk involved, it is best to consider the fact that all electronics are vulnerable to power problems. Despite advances in technology, power grids across the country are struggling to supply reliable power to homes and businesses. The increasing occurrence of large natural disasters, such as hurricanes, and the growing demand for electricity have created a significant strain on power grids and an increase in damaging power problems. IBM estimates that, in any given month, a typical computer will be hit by 120 power problems: four power problems each day. As a result, computer systems and electronics are under siege by more frequent blackouts, brownouts, overvoltages, surges and other power anomalies, all of which can result in downtime or lockups, data loss, productivity loss, audio static, video snow, slow electronic degradation and, ultimately, catastrophic equipment damage.

Although individuals and businesses frequently protect their computers and other electronics, recent patterns in digital signage purchasing indicate that purchasers are omitting this necessary step in preparing for their installations. Moreover, the costs of purchasing and installation are often borne by the content provider (usually an advertiser), buying decisions are most often made by the installer. The installer is contracted to connect the content source to the display, both of which are owned by the end-user. Protecting the end-user's equipment doesn't typically fall within the installer's or the advertiser's priorities.

Further, many people tend to regard digital signage as something passive and expendable, equivalent to wallpaper or a street sign. Because we encounter digital signage displays in a growing variety of locations, serving multiple functions, the displays quickly blend into the overall audio/visual landscape of daily life, and we—as well as those responsible for purchasing digital signage components—can easily forget that all electronics are vulnerable to power problems, and thus need power protection to remain fully functional.



Digital signage is used for many important applications. Without power protection it can be rendered inoperable in a flash.

Hardware functionality is not the only element at risk: A study by Contingency Planning and Management has found that power failures and surges account for over 45% of computer data loss—so clients who leave their digital signage systems vulnerable to power problems are gambling not only with their electronic equipment, but with the content it is intended to display. Without power protection, clients put their entire digital signage investments at risk, including the monetary and productivity-related expenses of service calls and replacing the equipment and software. Compounding this gamble is the possible loss of revenue which the digital signage system generates and the services it provides. Consider the monetary and/or human cost of suddenly being without:

Retail Sales Promotional Video /P.O.S. Displays (Retailer)

Flight Status Information (Airport)

Quick-Service Menus (Restaurant)

Trade Show Presentations (Automobile / Equipment Manufacturer, Event Promoter)

Medical Records / Surgical Monitors / Directions to the Emergency Room / Triage Center (Hospital)

Educational / Training Materials (University / Corporate Development Site)

With separate electronics systems protected independently of each other, each can continue to operate even if the other experiences an outage.

In addition, a digital signage installation requires independent protection, separate from other systems at its location. If, due to an overtaxed power protection system, a retailer should experience failure of the computer network controlling its cash registers and the digital displays advertising its new products, not only are all current sales brought to an immediate halt, but future sales revenues are significantly hurt because customers no longer receive promotional information. With the two systems protected independently of each other, however, each can continue to operate, even if the other experiences an outage.

The exact equipment and protection requirements of digital signage displays are as varied as the customers who utilize them. From national retail and restaurant chains to individual small businesses, corporate campuses to emergency medical and public service facilities, the specific needs will vary, but the overall essentials are the same: top-quality, independent power protection for all digital signage components, including sources and displays.

Tripp Lite surge protectors ensure clear, reliable delivery of your message.

Tripp Lite Single-Display Installations Solutions Include:

ISOBAR6ULTRA

AV2FP

TLP31SAT

Tripp Lite power protection is essential to protecting your digital signage investment. From the public display panels to the back room content sources, from the single-display installation in a neighborhood restaurant to the near-countless units used in an international airport, Tripp Lite meets the protection and networking needs of today's growing digital signage market:

At the Front End: Protect Your Display Panel with Surge Protectors

Whether your installation requires one screen or many, Tripp Lite surge protectors ensure clear, reliable delivery of your message by safeguarding monitors from damaging power surges and line noise. They also allow power to multiple devices from a single AC power outlet, simplifying installation in many locations.

Single-Display Installations

Retailers often need power protection installed at individual locations such as **registers, demonstration sites and information displays.**

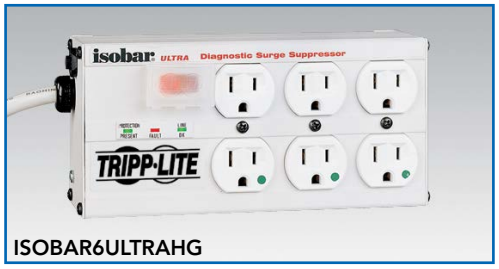
Each flat-panel display, as used in **trade shows, training rooms, educational sites, auditoriums and service centers**, needs a single surge protector mounted directly behind the panel.

RoHS COMPLIANT

GREEN SOLUTIONS

Tripp Lite Healthcare Solutions Include:

SPS-615-HG



ISOBAR6ULTRAHG

Tripp Lite Multiple-Display Installations Include:

IBAR12-20ULTRA

HT810ISOCTR

SMART750RMXL2U

Healthcare applications often require surge protectors equipped with hospital-grade plugs and receptacles that meet specifications for use in **hospitals, doctor's offices, clinics and waiting rooms.**

Multiple-Display Installations

Multi-display panel installations, such as **quick-service menus, flight status boards and stock exchange displays**, are usually controlled from central points in a back room, service closet or data center. Rack-mounted solutions are often the best choice in these instances, as they protect multiple display within a single location.

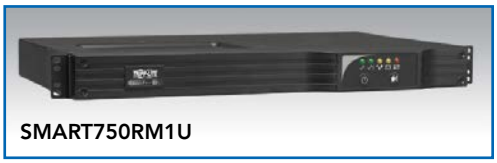
For mission-critical/emergency systems, Tripp Lite recommends further display panel backup with the **SMART750RMXL2U UPS system or larger. Contact Tripp Lite for application sizing assistance.**

The Tripp Lite solutions listed here are among many possible options. To see our full line of surge protectors, go to www.tripplite.com/surgefinder.

Tripp Lite UPS systems provide continuous power and battery backup for digital signage requirements of any size.

Tripp Lite Standard Systems Include:

Single Computer Source



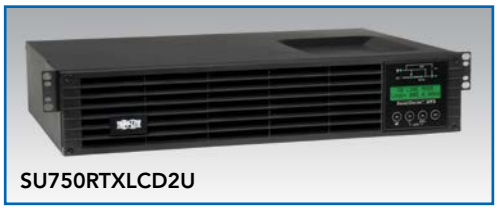
SMART750RM1U

Multiple Computer Sources

SMART1500RM2U

Tripp Lite High-Priority Systems Include:

Single Computer Source



SU750RTXLCD2U

Multiple Computer Sources

SU1500RTXLCD2U

At the Back End: Protect Your Content Source and Content with Uninterruptible Power Supply (UPS) Systems

All electronics need power protection, and here it is: comprehensive protection for computer data and for all electronics—high-definition content sources, servers, computers, DVD players, etc.—against all power problems. Tripp Lite UPS systems allow you to base your installation on a strong foundation: they prevent power anomalies from destroying programming content, reduce the need for costly service calls and enable outlet-bank reboots for any source that freezes up. With designs encompassing flat-pack compact and tower models for stealth/specialty applications, rackmount models for head-end distribution applications and cabinet-sized units to protect large-scale installations, Tripp Lite UPS systems provide continuous power and battery backup for any digital signage requirement.

Standard Systems (Good Protection and Good Availability)

Common applications include **campus information display systems, restaurant menu displays, point-of-sale promotional systems and digital billboards.**

High-Priority Systems (Better Protection and Better Availability)

Common applications include **point-of-sale checkout systems, training systems and presentation systems.**

RoHS COMPLIANT

GREEN SOLUTIONS

Tripp Lite Critical/Emergency Systems Include:

Single Computer Source

SU1000RTXL2UA or Larger

Multiple Computer Sources

SU2200RTXLCD2U or Larger

SmartOnline 3-Phase UPS System

SU40K

Critical/Emergency Systems (Best Protection, Best Availability, Extended Runtime and Display Panel Battery Backup)

Common applications include **emergency information systems, transportation schedules, event information systems, security systems and medical information systems.**

For back-end **systems larger than 20kVA**, Tripp Lite recommends **SmartOnline® 3-phase UPS systems.**

To see our full line of UPS solutions, go to www.tripplite.com/ups.

Tripp Lite **Cables**

N002-010-BK

P568-010

P500-010

Once Your Display Panel, Source and Content are Protected:

Rely on Tripp Lite to Connect Your Entire Network with Connectivity Solutions

Tripp Lite offers a wealth of cabling options for all digital signage applications, from retrofitting early-model equipment to meeting the needs of ongoing technological developments:

- Standard VGA, DVI and HDMI cable with lengths up to 100 ft.
- Cat5 cable, for increased flexibility. Tripp Lite has the largest selection of over Cat5 solutions, including individual cable lengths up to 1,000 ft.
- Plenum-rated cable, for applications requiring passage through plenum spaces while meeting fire codes
- Digital (DVI/HDMI) and analog (VGA) cable

To see our full line of cables and connectivity solutions, go to www.tripplite.com/cablefinder.

Tripp Lite **PDUs**

PDUMH15ATNET

Increase the Number of AC Outlets with Power Distribution Units

Tripp Lite's highly reliable, multiple-outlet power distribution units (PDUs) deliver power to mission-critical display panels, servers, computers, media players, etc.; switched models enable individual-outlet reboot in the event that a source freezes up.

To see our full line of PDUs, go to www.tripplite.com/pdufinder.

PDUMV20

Tripp Lite **IP Console Servers**

B096-048

B095-004-1E

Eliminate Expensive Service Calls with IP Console Servers

DBS receivers/HD sources suddenly not getting the signal? Media server freeze up? Reboot from anywhere in the world with Tripp Lite's IP console servers: they are ideal for applications requiring the highest availability, the ability to solve complex problems remotely and the ability to manage large, complex equipment installations through a single IP address. They give you secure remote access to your system, even in the event of network outage or equipment malfunction, so you can get operations back up and get on with your life…no service call necessary.

To see our full line of IP console servers, go to www.tripplite.com/consoleservers.

Tripp Lite **Tilting Wall Mounts**

DWT1327S

DWT3770X

Bring the Message to Your Audience with Display Mounts

The placement and position of a message can make or break the delivery to the intended viewing audience. A successful display installation is not only pleasing to the eye. It also needs to be secure, with proper support, in the proper location. Tripp Lite's line of display mounts meets those needs with models for every application, with fixed, tilting and full-motion designs that support common display sizes from 13 to 85 inches and up to 200 pounds. Supporting a wide range of displays, the mounts are suitable for a variety of applications, including informational displays, home theaters, retail locations, meeting rooms and control rooms.

Tilting Wall Mounts

- Tilt adjustment provides improved viewing angles for applications where the audience is below the display
- Low-profile mounting keeps unit out of sight for sleek, professional appearance
- Horizontal adjustment compensates for off-center wall studs

Tripp Lite **Full-Motion Wall Mounts**

DWM1742MN

DWM2342M

Full-Motion Wall Mounts

- Full-motion articulation provides the most flexible view optimization
- Can be used to increase available desk/table space in office applications
- One-touch repositioning provides convenient display adjustment for varied tasks

Tripp Lite **Fixed Wall Mounts**

DWF1327M

DWT3270X

Fixed Wall Mounts

- Low-profile mounting keeps unit out of sight for sleek, professional appearance
- Horizontal adjustment compensates for off-center wall studs

To see our full line of Display Mounts, go to www.tripplite.com/displaymounts.

About Tripp Lite

Manufacturing Excellence.

Customers in the IT, telecom, industrial, commercial, corporate, healthcare, government and education sectors choose Tripp Lite for complete solutions to power, protect, connect and manage servers, network hardware and other equipment in data centers and related facilities. Tripp Lite makes more than 2,500 products, including UPS systems, battery packs, PDUs, rack enclosures, cooling solutions, surge protectors, KVM switches, cables, power strips and inverters. For more information about Tripp Lite's full line of data center solutions, visit www.tripplite.com.