

The Transient Environment and Facility Wide *Optimal Protection Network™ (Part One)*

The Problem - The Transient

The Number One Power Quality Problem

Transients are by far the single most destructive, costly and common power quality event. Transient voltage surge related activity costs U.S. companies billions of dollars per month in equipment damage, system downtime and lost opportunity. This cost will only increase in years to come as we become even more reliant on increasingly more delicate electronic systems and microprocessor based controls.

Other events such as power outages, sags, swells and harmonics cause problems that are, relatively speaking, minor from an operational and cost standpoint. By contrast, a single high energy transient can take an entire system down for extended periods of time, causing process interruptions, shipping delays and significant loss of revenue. Very often the equipment repair or replacement cost will pale in comparison to the costs of lost opportunity. If your systems are down, you cannot provide the goods and services that your customers need and demand. The result - ***Your Bottom Line Takes The Hit!***

The Cause - What Is A Transient?

Transients are brief but powerful over-voltages and over-currents lasting up to 100 microseconds (as defined by ANSI/IEEE C62). They can reach in excess of 100,000 volts during extreme events. Transients are generated by a wide variety of sources originating from both outside and inside your facility.

External transient sources include lightning, power system faults and utility grid switching. ***Internal transient sources*** are most often generated by load switching (turning on and off of equipment) and from normal equipment operation. While much lower in voltage and current as compared to external sources, internal switching transients can occur over ***1,000,000*** times per hour in active industrial environments.

Even without a single lightning strike, power system anomalies and internally generated transient activity will cause premature board failure, operational errors, and decreased overall productivity. These problems and related costs are often just accepted as a normal part of doing business. ***Don't just accept what can be prevented!***

The Future of Your Business

You may be surprised to learn that the investment needed to protect your systems from transient related damage is ... *Already in your Budget!* The reduction in your yearly cost for electronic and electrical maintenance resulting from transient activity will easily pay for the investment in your protection system. In fact, the average *Return on Investment* for a Surge Suppression Incorporated Optimal Protection Network, facility wide protection system, is often *less than one year* and can be as soon as the next lightning storm, downed power line or overly curious squirrel in a power transformer.

An Ever Increasing Problem

Today's sophisticated electronics and microprocessor based systems are becoming more and more interwoven into the design of the systems that control the operation of virtually every aspect of our commercial, industrial and personal lives. These circuits are rapidly becoming smaller, faster and more integrated. They are just as rapidly becoming even more susceptible to erratic operation, damage, and catastrophic failure as a result of Transient Voltage Surges.

Your Critical Systems Are In Danger!

These delicate electronic circuit control systems found in applications such as waste and water treatment facilities, traffic control systems, point of sale terminals, automated manufacturing, accounting, air traffic control systems, computer systems, 911 communications centers, health care facilities, security systems, emergency trauma centers and countless other components of our industrial, commercial and military sectors. Consider the impact on your personal and professional life if the equipment supporting one, two or more of these systems failed during any given day. The results could be, and very often are, devastating.

External Sources - 20%

While dramatic and most often catastrophic, lightning and power distribution system faults represent only about 20% of the overall transient problem.

Internal Sources - 80%

Internally generated load switching can produce over 1,000,000 transients per hour in active industrial environments. This constant bombardment causes cumulative damage and eventual hard failure.