WHAT ARE POWER SURGES?

How a surge protective device can protect your facility.

Surges, or transients, are brief **overvoltage spikes** or disturbances on a power waveform that can damage, degrade, or destroy electronic equipment within any home, commercial building, industrial, or manufacturing facility. Transients can reach amplitudes of **tens of thousands of volts**. Most equipment is designed to handle minor variations in their standard operating voltage. However, surges can be very **damaging** to nearly **all equipment**.

A typical building experiences **multiple power surges every day**.

The average cost of downtime caused by power surge is **$130,000** per event.

Symptoms of Power Surges

- Circuit Board Failure
- Lighting Failure
- Motor Failure
- Phantom Equipment Restart

Causes of Power Surges

Internal Sources

60 – 80% of power surges originate within facilities. These are typically caused from large loads switching off and on.

SWITCHING OF ELECTRICAL LOADS FROM:

Contactor, Relay & Breaker Operations

Switching of Capacitor Banks & Loads*

*e.g. power factor correction

Discharge of Inductive Devices*

*motors, transformers, etc.

Fault or Arc Initiation

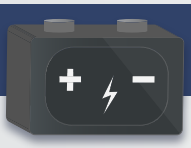
Arcing Faults*

*ground

Fault Clearing or Interruption

Power System Recovery*

*from outage



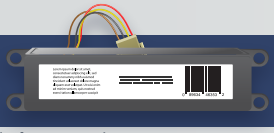
DC Battery Storage Systems

MAGNETIC & INDUCTIVE COUPLING FROM:

Elevators

HVAC*

*with variable frequency drives



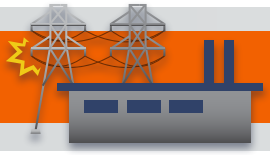
Fluorescent Light Ballasts

Copy Machines

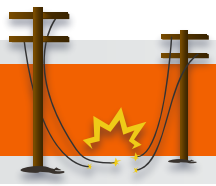
Computers

External Sources

Lightning



Grid & Capacitor Bank Switching



Damage to Power Lines or Transformers

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