CITEL

SURGE PROTECTORS

FOR

Industrial Machinery



citel.us

CITEL,



the global solutions provider.

Since 1937, Citel has been an innovator in the field of Surge Protection. Today, Citel is a global leader in the development of reliable and adapted Surge Mitigation Solutions for critical applications.

Citel is unique as a manufacturer of Surge Protective Components (SPCs), Surge Protective Devices (SPDs), and coordinated protection systems.

- **Over 1 billion lines protected**
- **Local support in over 200 countries**
- **High current R&D laboratories at your disposal**

THREAT

$26B in Losses due to Power Surges

Today's increased reliance on very sensitive electronics and processes make surge protection an important discussion topic in order to avoid catastrophic business losses. The Insurance Institute for Business & Home Safety study found that $26 billion dollars was lost due to non-lightning power surges. In addition, there are about 25 million lightning strikes in the US each year that cause between $650M to $1B in losses according to the Insurance Information Institute, State Farm©.

1. Direct Strike



2. Earth Potential Rise



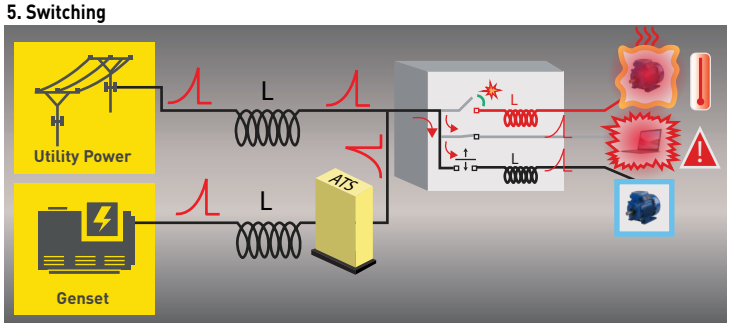
3. Strike on Overhead Lines



4. Coupling



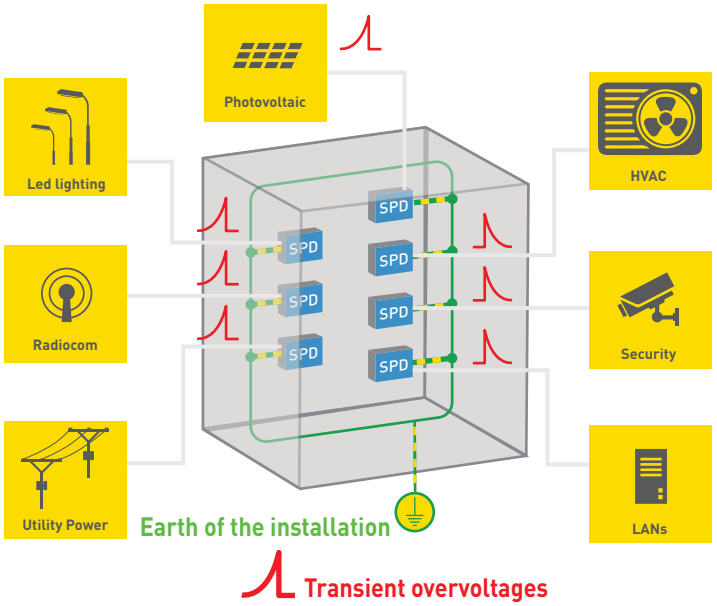
5. Switching



SOLUTION

Global Surge Mitigation Concept

Our philosophy is simple – determine your risk and evaluate every line (power or signal) for vulnerabilities. We call this "The Box Concept." It works equally well for a single piece of equipment or an entire facility. Once you have determined your "boxes", it is simple to develop a coordinated protection scheme to eliminate all threats from lightning and switching surges.



CITEL provides a wide range of surge protectors adapted to every network: **AC Power, DC Power, Telecom, Data and Coaxial.**

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COMMON INDUSTRIAL MACHINERY APPLICATIONS

As the technology for Industrial Machinery becomes more sophisticated, the risk of damage caused by lightning strikes and power grid disturbances becomes more prominent. Production-dependent systems, such as Industrial Machinery, must deploy a coordinated system of Surge Protective Devices (SPDs) to ensure continuous operation.

Food Processing



Packaging Conveyor Belt



- Main Incoming Power Source
- Variable Frequency Drives (VFD)
- Control Circuit PLC Sensor
- Safety Interlock Switch
- Emergency Stop

Industrial Tooling



CNC Lathe



- Main Incoming Power Source
- Lathe Drives
- External Communication Connections
- Safety Interlock Switch
- Emergency Stop

Packing Machines



Sealing Machine



- Variable Frequency Drive (VFD)
- Conveyor Belt Drive
- Safety Interlock Switch
- Emergency Stop

Automated Assembly Lines



Robotic Assembly Arm



- Motor Control Center
- Instruction Transmission Lines
- AC Power - Service Entrance

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COORDINATED PROTECTION STRATEGY



Description/Location/Model

AC Power Service Entrance Panel	1	MDS Series
AC Power Main Distribution Panel	2	MS Series
AC Power Sub Distribution Panel	3	M50 Series
AC Power Machinery	4	DAC100US Series
DC Power Control Circuit	5	DS2x0-xxDC
Signal/Twisted Pair Control Wire	6	DLA Series
Safety Interlock Switch	7	DLA Series
PLC AC Power Input	8	DS240 Series
Sensors (4-20mA)	9	DLC Series
Ethernet/PoE Communications	10	MJ8 Series

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RECOMMENDED PRODUCTS (TECHNICAL CHARACTERISTICS)

Power Distribution






Product	MDS750E	MS200	M50	DAC100US
Application	Main Service Entrance	Switchboard	Main Service Panel	Incoming AC Power
Voltage(s)	120, 277, 240, 480, 600			
Phase	Single, Split, WYE, Delta, High-Leg Delta			
In (8/20µs)-kA	20			
Imax (8/20µs)-kA	440	220	50	100
UL Standard	Listed Type 1			

Control & Safety Circuits





Product	DS240S	DS2X0-XXDC	DLA
Application	High Voltage DC	Power Supplies	Internal Data Connections
Voltage(s)-(DC)	up to 350	12, 24, 48	
In (8/20µs)-kA	20	10	.25
Imax (8/20µs)-kA	20, 40	40	20
UL Standard	Recognized Type 4CA		UL 497B

Signaling & Feedback






Product	MJ8-POE	DLC	DLA	P8AX
Application	Indoor Gigabit Ethernet & PoE	Internal Dataline Connections		Coaxial/RF
Connection	RJ45	Screw Terminal		N, F, BNC, SMA, TNC
Voltage(s)-(DC)	60	12, 24, 48		up to 400
Imax (8/20µs)-kA	16	10	20	
UL Standard	UL 497B			UL 497E

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