CITEL

SURGE PROTECTORS

FOR

Data Centers



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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



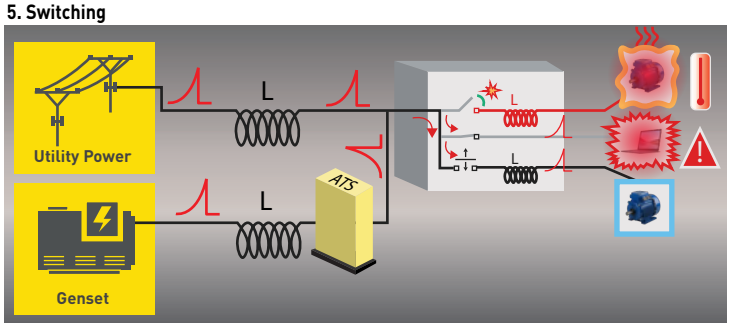
3. Strike on Overhead Lines



4. Coupling



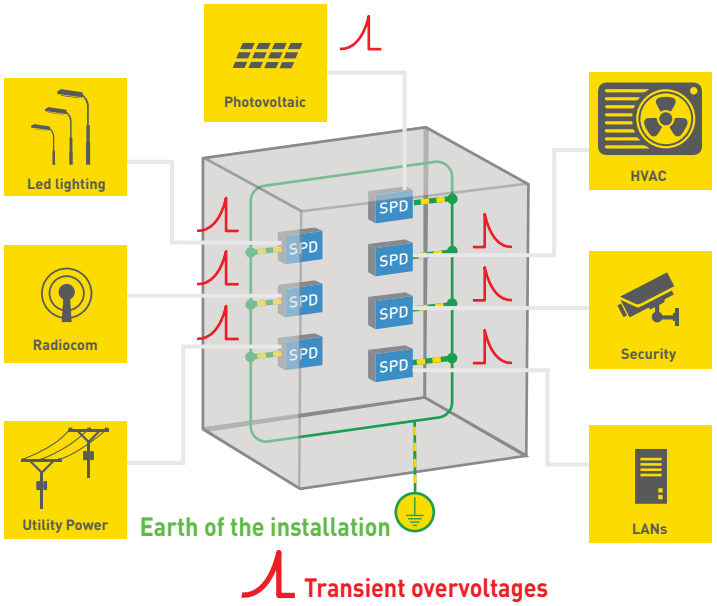
5. Switching



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 DATA CENTER APPLICATIONS

As the technology for Data Centers becomes more sophisticated, the risk of damage caused by lightning strikes and power grid disturbances becomes more prominent. Advanced Data Center systems must deploy a coordinated system of Surge Protective Devices (SPDs) to ensure continuous operation.

Primary AC Power Chain



AC Power



- Main Service Entrance
- Switchboard
- Power Distribution Units (PDU)
- Remote Power Panels (RPP)
- Genset Automatic Transfer Switch (ATS)

Photovoltaic & Energy Storage



DC Power



- PV Inverters
- PV Combiner Boxes
- Energy Storage Units
- Fault Managed Power Systems

Safety & Security

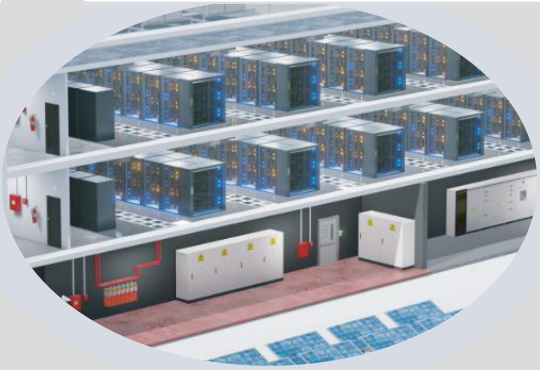


Dataline



- Fire Detection and Supression Systems
- Cameras
- Access and Entry Systems

Facility Management & Environmental Controls



- Building Management Systems (BMS)
- LED Lighting and Control
- HVAC Systems

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COORDINATED PROTECTION STRATEGY



Description/Location/Model

Main Service Entrance	1	MDS750E	PoE Switch	5	RAK Series
Switchboard	2	MDS300	Security Camera	6	LAN-10G-POE
PDU / RPP	3	DAC100US Series	HVAC	7	MS200
Inverters	4	DS50PVS	Access Control	8	DS220S

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RECOMMENDED PRODUCTS (TECHNICAL CHARACTERISTICS)

AC Power






Product	MDS750E	MDS300	MS200	DAC100US
Application	Main Service Entrance	Switchboard		PDU/RPP/Security Systems
Voltage(s)	240, 277, 480			
Phase	3D, 3Y			
In (8/20µs)-kA	20			
Imax (8/20µs)-kA	750	600	440	100
UL Standard	Listed Type 1			

DC Power






Product	DS50VGPVS	DS50PVS-1500/51/DC	DS240	DS220S / DS230S
Application	Photovoltaic	Energy Storage Systems	High Voltage DC	Power Supplies
Voltage(s)-(DC)	500, 600, 1000, 1500	1500	up to 350	12, 24, 48
In (8/20µs)-kA	20	10	20	10
Imax (8/20µs)-kA	40		80	40, 60
UL Standard	Listed Type 1CA	Listed Type 4CA	Recognized Type 4CA	

Communication







Product	MJ8-POE-C6A	RAK	LAN-10G-POE	P8AX
Application	Indoor Gigabit Ethernet & PoE		Outdoor 10 Gigabit Ethernet & PoE	Coaxial/RF
Connection	RJ45			N, F, BNC, SMA, TNC
Voltage(s)-(DC)	60	8	60	up to 400
In (8/20µs)-kA	2	.25	2	20
Imax (8/20µs)-kA	16	1	16	20
UL Standard	UL497B		UL497B (pending)	UL497E

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