



# CITEL

## SURGE PROTECTORS

FOR

**Data Centers**



[citel.us](http://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.

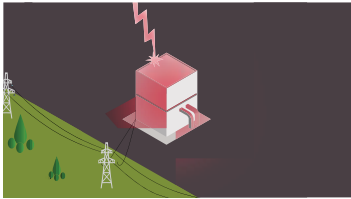
- Over 1 billion lines protected
- Local support in over 200 countries
- High current R&D laboratories at your disposal

## THREAT

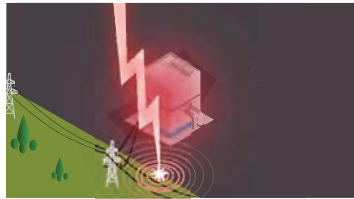
### \$26B in Losses due to Power Surges

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©.

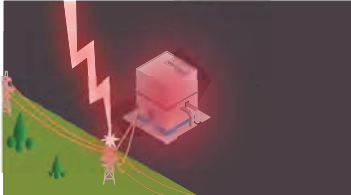
1. Direct Strike



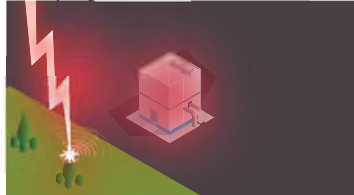
2. Earth Potential rise



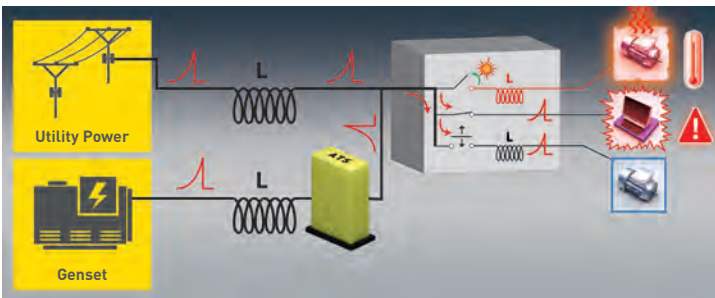
3. Strike on overhead lines



4. Coupling



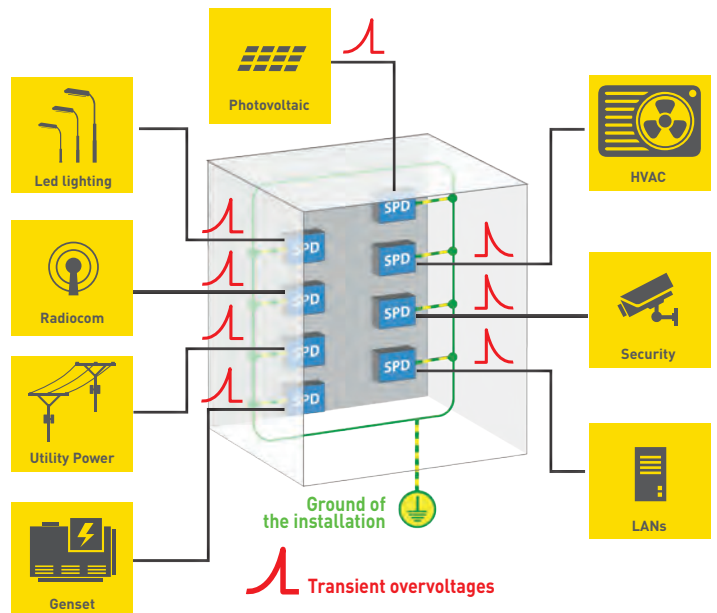
5. Switching



## 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.**

# COMMON DATA CENTER APPLICATIONS

As the technology for data storage and management systems becomes more sophisticated, the risk of destruction caused by lightning strikes and power line disturbances becomes more evident. Mission critical data management systems must deploy a coordinated system of surge protective devices (SPDs) to ensure continuous operation.

## Power Distribution



Switchboard

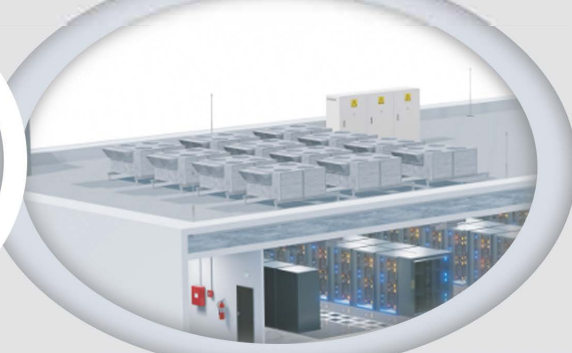


- Main Service Entrance
- Switchboard and Switchgear
- Power Distribution Unit (PDU)
- Remote Power Panel (RPP)
- Genset/Back-up Generator
- Automatic Transfer Switch (ATS)
- Photovoltaic (PV) Equipment
- Battery Energy Storage System (BESS)

## HVAC & Cooling



Chiller



- Chiller
- Immersion Cooler
- Dehumidifier
- Direct-to-Chip (DTC) Cooling
- In-Row Cooling
- Computer Room Air Conditioning (CRAC)
- Computer Room Air Handler (CRAH)

## Security & Access Control



Security Camera

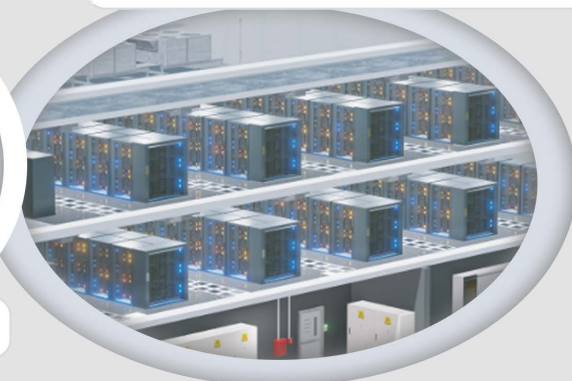


- Fire Detection
- Fire Suppression
- Security Camera
- Intrusion Detection System (IDS)
- RFID Reader
- Network Door Controller
- Biometric Recognition

## Data & Communication Networks

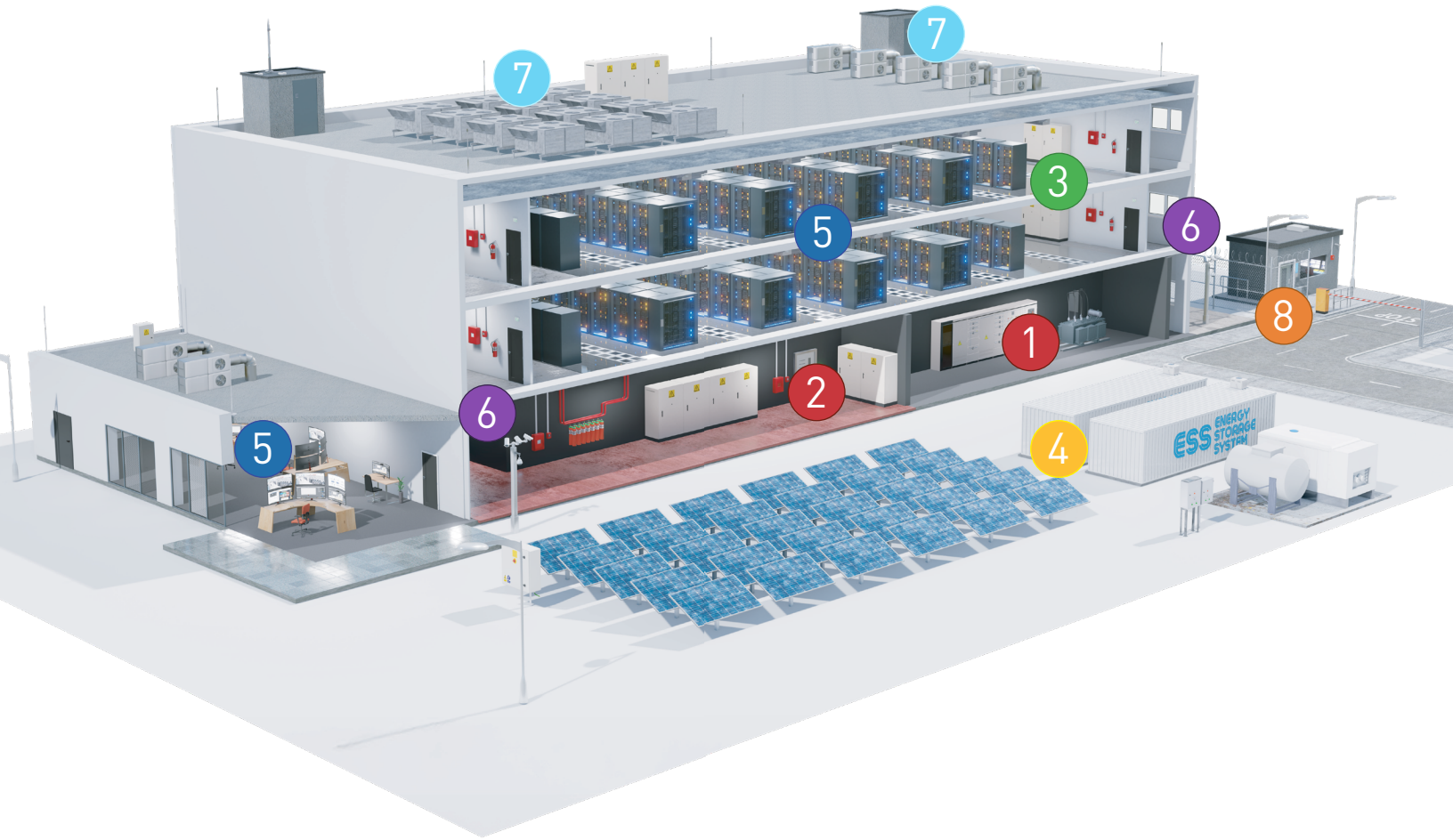


Rack Server



- Ethernet LAN Network
- Transmission Array
- Wireless Radio
- Ethernet Switch
- Rack Server

# COORDINATED PROTECTION STRATEGY



## Description/Location/Model

Main Service Entrance	1	MDS750E	POE Switch	5	RAK Series
Switchboard	2	MDS/MS Series	Security Camera	6	LAN- 10G-POE
PDU / RPP	3	DS70US Series	HVAC	7	MS200
Inverters	4	DS50PVUS	Access Control	8	DS220S

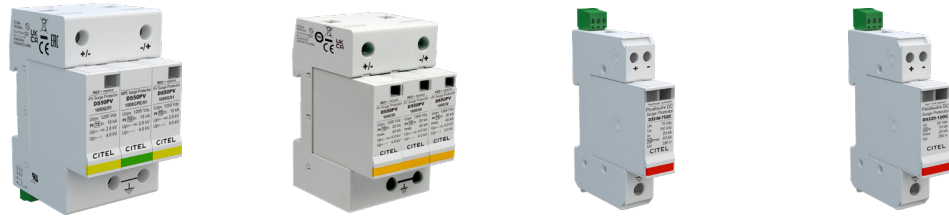
# RECOMMENDED PRODUCTS (TECHNICAL CHARACTERISTICS)

## AC Power



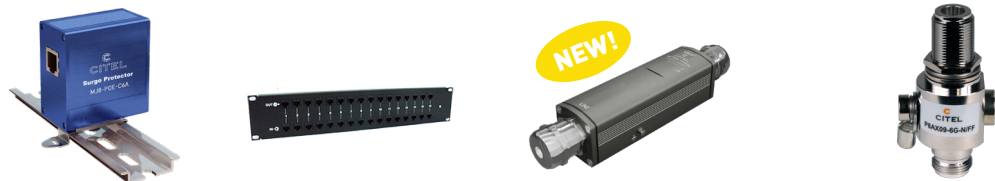
Product	MDS750E	MDS300	MS200	DS70US
Application	Main Service Entrance	Switchboard		PDU/RPP/Security Systems
Voltage(s)	240, 277, 480			120, 240, 277, 480
Phase	3D, 3Y			1S, 2T, 3D, 3Y
In (8/20μs)-kA	20			
I <sub>max</sub> (8/20μs)-kA	450	150	220	75
UL Standard	Listed Type 1			

## DC Power



Product	DS50VGPVUS	DS50PVUS	DS240	DS220S / DS230S
Application	Photovoltaic	Energy Storage	High Voltage DC	Power Supplies
Voltage(s)-(DC)	500, 1000, 1500	500, 600, 1000, 1500	up to 350	12, 24, 48
In (8/20μs)-kA	10		20	10
I <sub>max</sub> (8/20μs)-kA	40		40	20, 30
SCCR-kA	50	100	n/a	
UL Standard	Listed Type 1CA	Listed Type 1	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
I <sub>max</sub> (8/20μs)-kA	16	1	16	20
UL Standard	UL497B		UL497B (pending)	UL497E

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