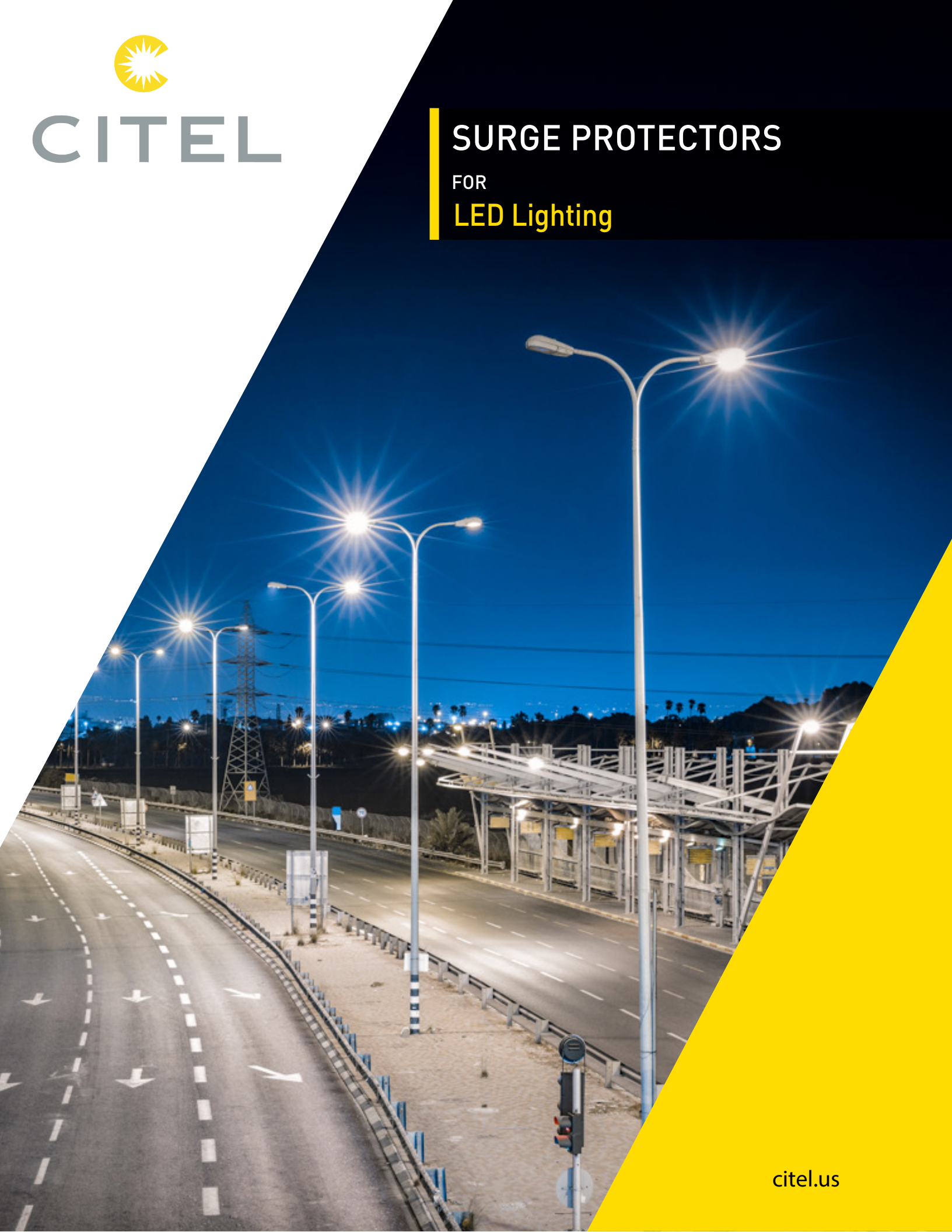
CITEL

SURGE PROTECTORS

FOR

LED Lighting



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.

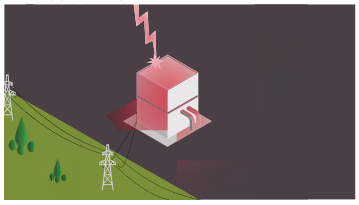
- **Over 1 billion lines protected**
- **Local support in over 200 countries**
- **High current R&D laboratories at your disposal**

THREAT

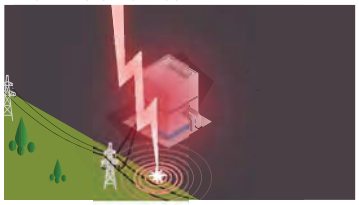
$26B in Losses due to Power Surges

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



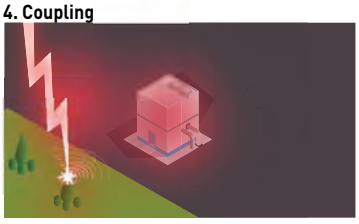
2. Earth Potential rise



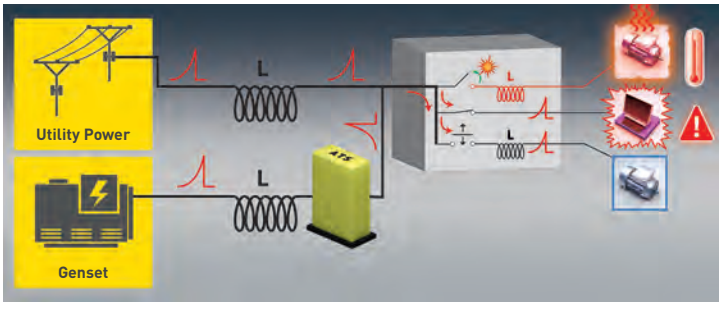
3. Strike on overhead lines



4. Coupling



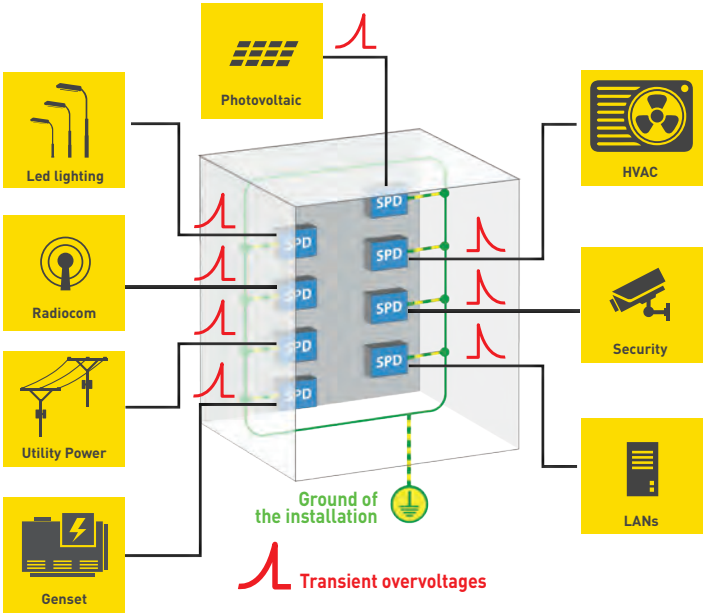
5. Switching



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.

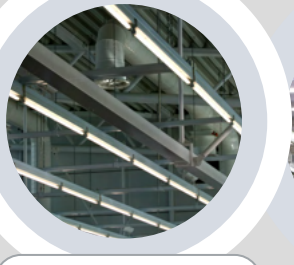


CITEL provides a wide range of surge protectors adapted to every network: **AC Power, DC Power, Telecom, Data and Coaxial.**

CITEL

COMMON LED LIGHTING APPLICATIONS

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



Indoor Light Fixtures

Architectural Lighting



- Exterior Area Lighting
- Dormitory Lighting
- Dimmers
- Emergency Signage



Street Light

Roadway Lighting



- Traffic Signals
- Area Lighting
- Dynamic Signage



Traffic Signal Control

Street Cabinets



- Signal Lighting AC Power
- Digital Addressable Lighting Interface (DALI)
- Traffic Control Data Connection
- AC to DC Converters

COORDINATED PROTECTION STRATEGY



Description/Location/Model

AC Power Supply	1	M50 Series	DC Power Supply	4	DS240S
DIN Rail AC	2	DAC80US Series	PoE Switch	5	MJ8-POE
Luminare Power	3	MLPXU Series	Remote Signaling	6	DLA Series

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RECOMMENDED PRODUCTS (TECHNICAL CHARACTERISTICS)

Street Cabinet



Product	M50	DAC80US
Application	AC Service Entrance	Fixture Main Power
Voltage(s)	120, 240, 277	
Phase	Single, Split	
In (8/20µs)-kA	20	
Imax (8/20µs)-kA	440	80
UL Standard	Listed Type 1	

LED Luminare





Product	MLPXU-HE	MLPC	MSB10
Application	Incoming AC Power	LED Fixtures	
Voltage(s)	277		120, 230, 480
Phase	Single		
In (8/20µs)-kA	10	5	3
Imax (8/20µs)-kA	22	10	18
UL Standard	Recognized	Listed Type 2	

DC Power



Product	DS220S
Application	Incoming DC Power
Voltage(s)-(DC)	12, 24, 48
In (8/20µs)-kA	10
Imax (8/20µs)-kA	20, 30
UL Standard	Recognized Type 4CA

Ethernet & Dataline



Product	DLA
Application	Indoor Gigabit Ethernet & POE
Voltage(s)-(DC)	12, 24, 48
Imax (8/20µs)-kA	20
UL Standard	UL 497B

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