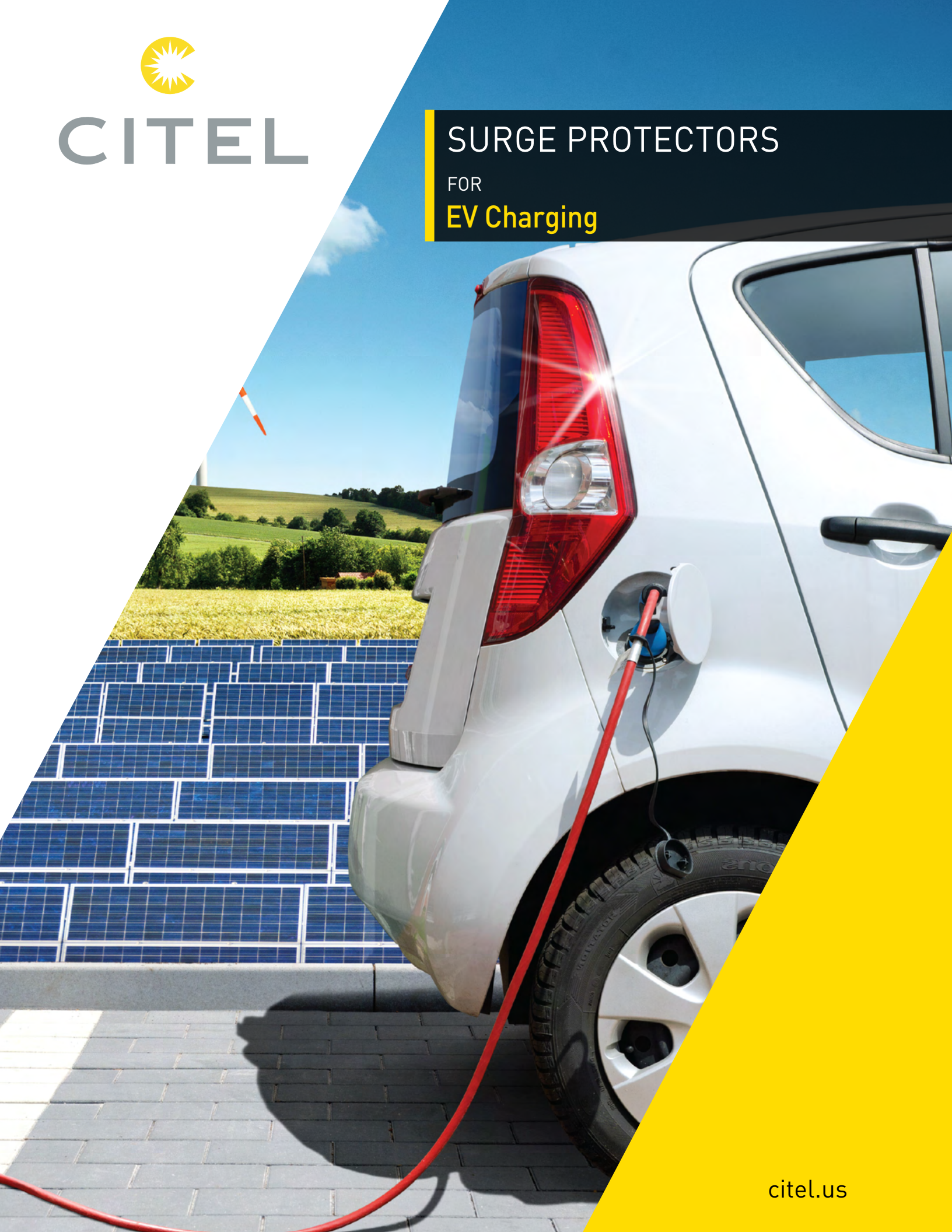
CITEL

SURGE PROTECTORS

FOR

EV Charging



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



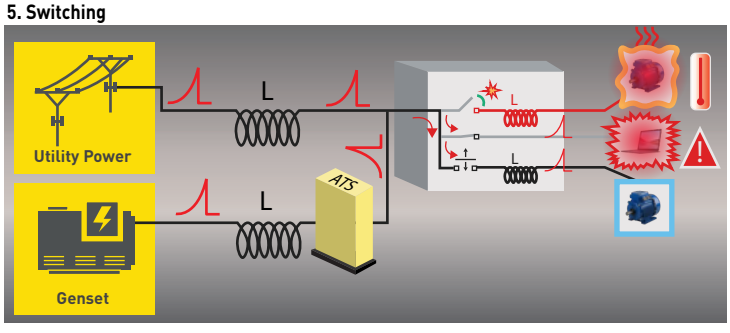
3. Strike on Overhead Lines



4. Coupling



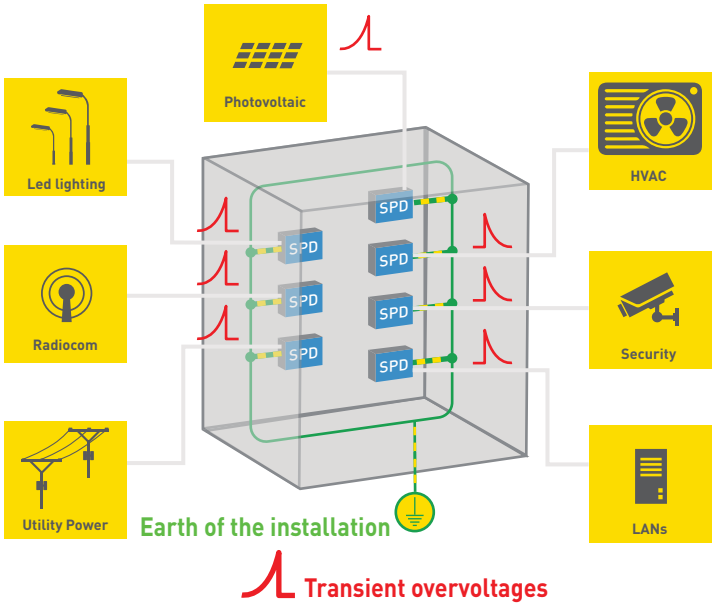
5. Switching



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.



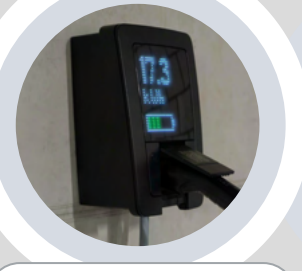
CITEL provides a wide range of surge protectors adapted to every network: **AC Power, DC Power, Telecom, Data and Coaxial.**

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COMMON EV CHARGING APPLICATIONS

As the technology for EV Charging becomes more sophisticated, damage caused by lightning strikes and power grid disturbances becomes highly consequential. EV Charging Systems must deploy a coordinated system of Surge Protective Devices (SPDs) to ensure continuous operation.

120 VAC Household Outlet



Domestic Outlet Charger



- Breaker Panel - Service Entrance
- Whole Home
- DC Inverters
- Attached Residential PV Systems

240 VAC Appliance or Commercial Outlet



Commercial EV Charger



- Grid Power - Service Entrance
- Power Distribution Units (PDU)
- Battery Storage Systems
- Point-of-Sale Interface
- Area Lighting

DC Fast-Charging Stations



Quick-Charge Station



- Grid Power - Service Entrance
- Battery Storage Systems
- Point-of-Sale Interface
- Area Lighting

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COORDINATED PROTECTION STRATEGY





Description/Location/Model

AC Service Entrance	1 M50 Series	Inverters & Combiners	3 DS50VGPVS
Charging Equipment	2 DAC100US Series	Internal Data	4 DLA Series
PoE Connections	5 MJ8-POE		

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RECOMMENDED PRODUCTS (TECHNICAL CHARACTERISTICS)

AC Power





Product	M50	DAC100US
Application	AC Service Entrance	Charging Equipment
Voltage(s)	120, 240, 277, 480	
Phase	Single, Split, WYE, Delta	
In (8/20µs)-kA	20	
Imax (8/20µs)-kA	50	100
UL Standard	Listed Type 1	

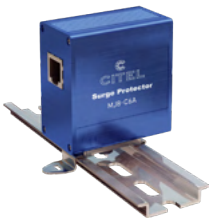
DC Power





Product	DS50VGPVS	DS50PVS-1500/51/DC
Application	Photovoltaic	Energy Storage Systems
Voltage(s)-(DC)	500, 600, 1000, 1500	1500
In (8/20µs)-kA	20	10
Imax (8/20µs)-kA	40	
UL Standard	Listed Type 1CA	Listed Type 4CA

Ethernet & Dataline





Product	MJ8-C6A	DLA
Application	Indoor Gigabit Ethernet & PoE	Internal Data Connections
Connection	Ethernet	Screw-Terminal
Voltage(s)-(DC)	60	12, 24
Imax (8/20µs)-kA	16	20
UL Standard	UL 497B	

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