CITEL

SURGE PROTECTORS

FOR

Intelligent Transportation Systems



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



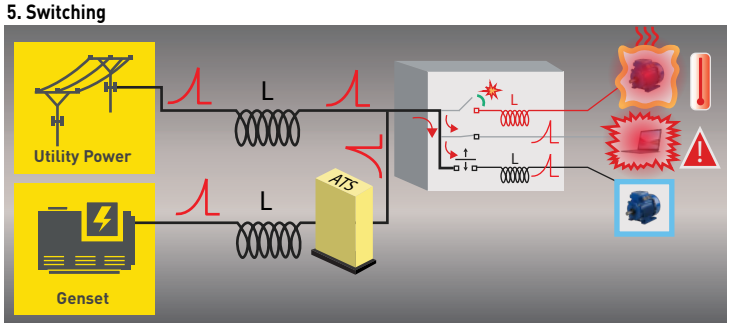
3. Strike on Overhead Lines



4. Coupling



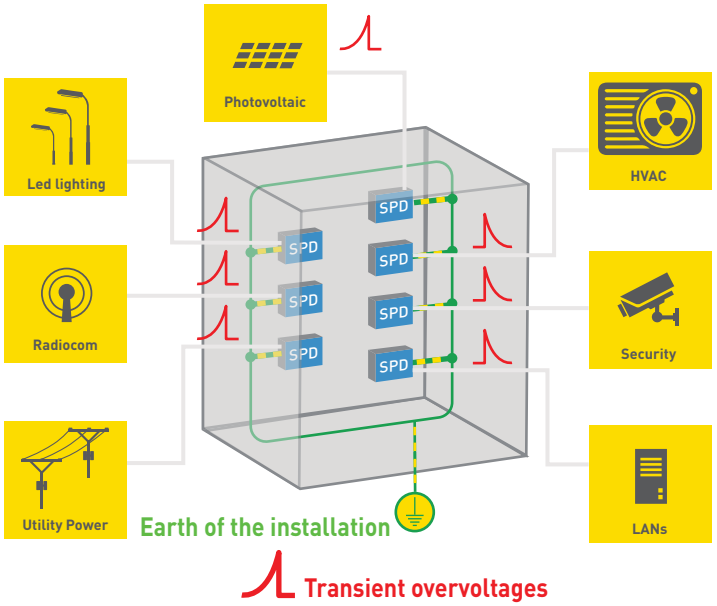
5. Switching



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 INTELLIGENT TRANSPORTATION SYSTEM APPLICATIONS

As the technology for Intelligent Transportation Systems becomes more sophisticated, the risk of damage caused by lightning strikes and power grid disturbances becomes more prominent. Advanced Intelligent Transportation Systems must deploy reliable Surge Protective Devices (SPDs) to ensure continuous operation.

Traffic Control Systems



ITS Cabinet



- Power Systems
- Control Systems
- Communications Control Systems

Toll Plazas



Tollway Gate



- Vehicle Detectors
- Video Cameras
- Weather Sensing Equipment
- GPS
- Cellular Towers

Traffic Intersection Equipment



Traffic Lights



- Adaptive Traffic Signals
- Ramp Metering
- Variable Message Signage
- Lane Control Signals
- Video Cameras
- Wireless Communication Arrays

Dynamic Signage



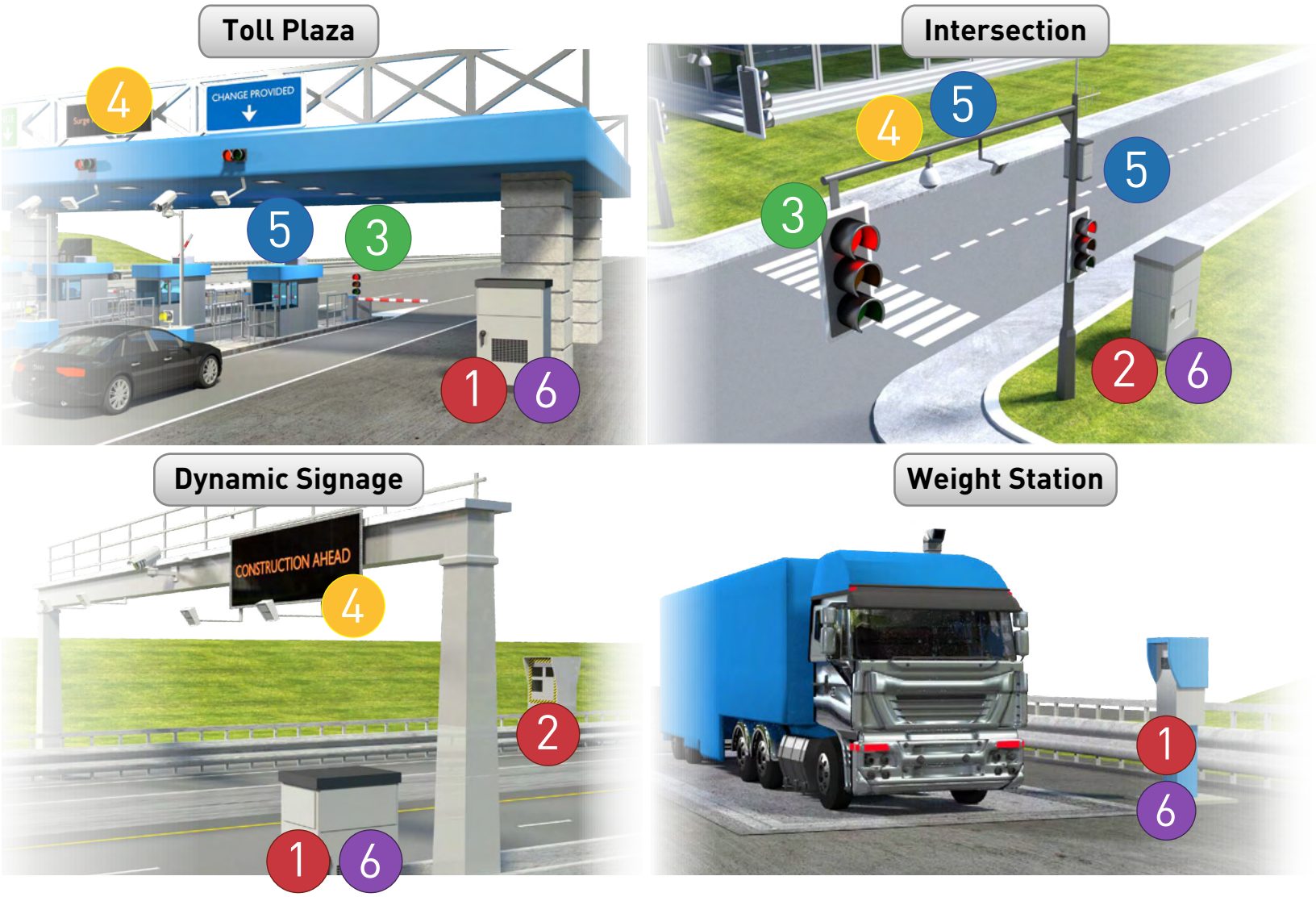
Message Board



- Variable Message Signage
- Wireless Communication Arrays
- Detection Cameras
- Signage Area Lighting

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COORDINATED PROTECTION STRATEGY



Description/Location/Model

AC Power Supplies	1	M50 Series
DIN Rail AC	2	DAC100US Series
Luminare Power	3	MLPXU Series
DC Power Supplies	4	DS240S
PoE Connections	5	MJ8-POE LAN-10G-POE
DIN Rail Dataline	6	DLA Series

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RECOMMENDED PRODUCTS (TECHNICAL CHARACTERISTICS)

AC Power









Product	M50	DAC100US	MSB10	MLPXU-HE
Application	Primary AC Switchboard	Incoming AC Power	LED Signal Lighting	
Voltage(s)	120, 277, 240, 480, 600		120, 230, 480	277
Phase	Single, Split, WYE, Delta, High-Leg Delta		Single	
In (8/20µs)-kA	20		3	10
Imax (8/20µs)-kA	50	100	18	20
UL Standard	Listed Type 1		Listed Type 2	Listed Type 4CA

DC Power





Product	DS240S	DS220S
Application	High Voltage DC	Low Voltage DC
Voltage(s)-(DC)	up to 350	12, 24, 48
In (8/20µs)-kA	20	10
Imax (8/20µs)-kA	40	20
UL Standard	Recognized Type 4CA	

Coaxial



Product	P8AX
Application	Coaxial/RF
Connection	N, F, BNC, SMA, TNC
Voltage(s)-(DC)	up to 400
Imax (8/20µs)-kA	20
UL Standard	UL 497E

Ethernet & Dataline







Product	DLA	MJ8-C6A	LAN-10G-POE
Application	Dataline	Indoor Gigabit Ethernet & PoE	Outdoor 10 Gigabit Ethernet & PoE
Connection	Screw Terminal	RJ45	
Voltage(s)-(DC)	12, 24, 48	60	
Imax (8/20µs)-kA	20	16	
UL Standard	UL 497B		UL 497B (pending)

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