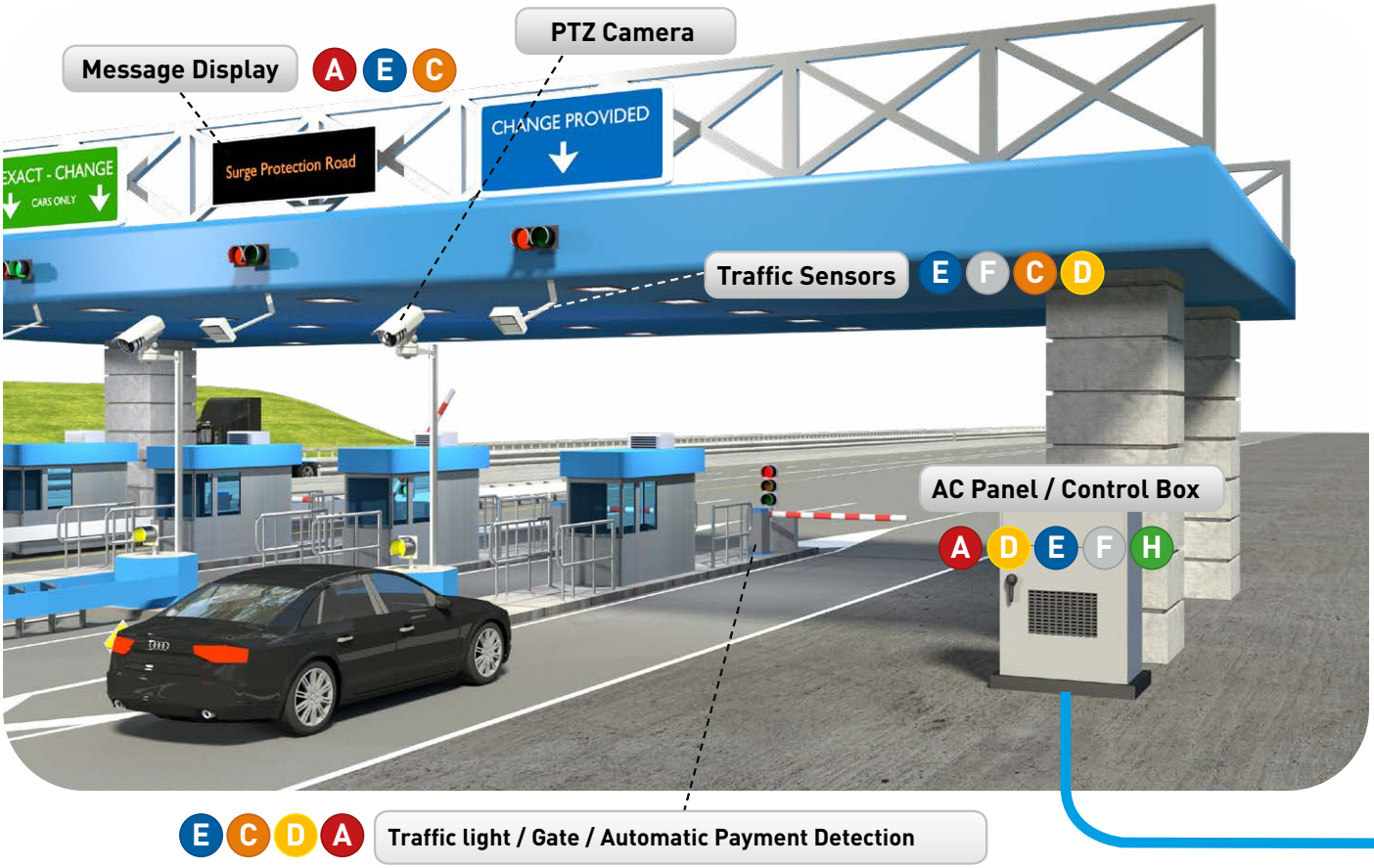
CITEL

SURGE PROTECTORS FOR Intelligent Transportation systems

www.citel.fr

SURGE PROTECTIVE DEVICES FOR TRAFFIC CONTROL

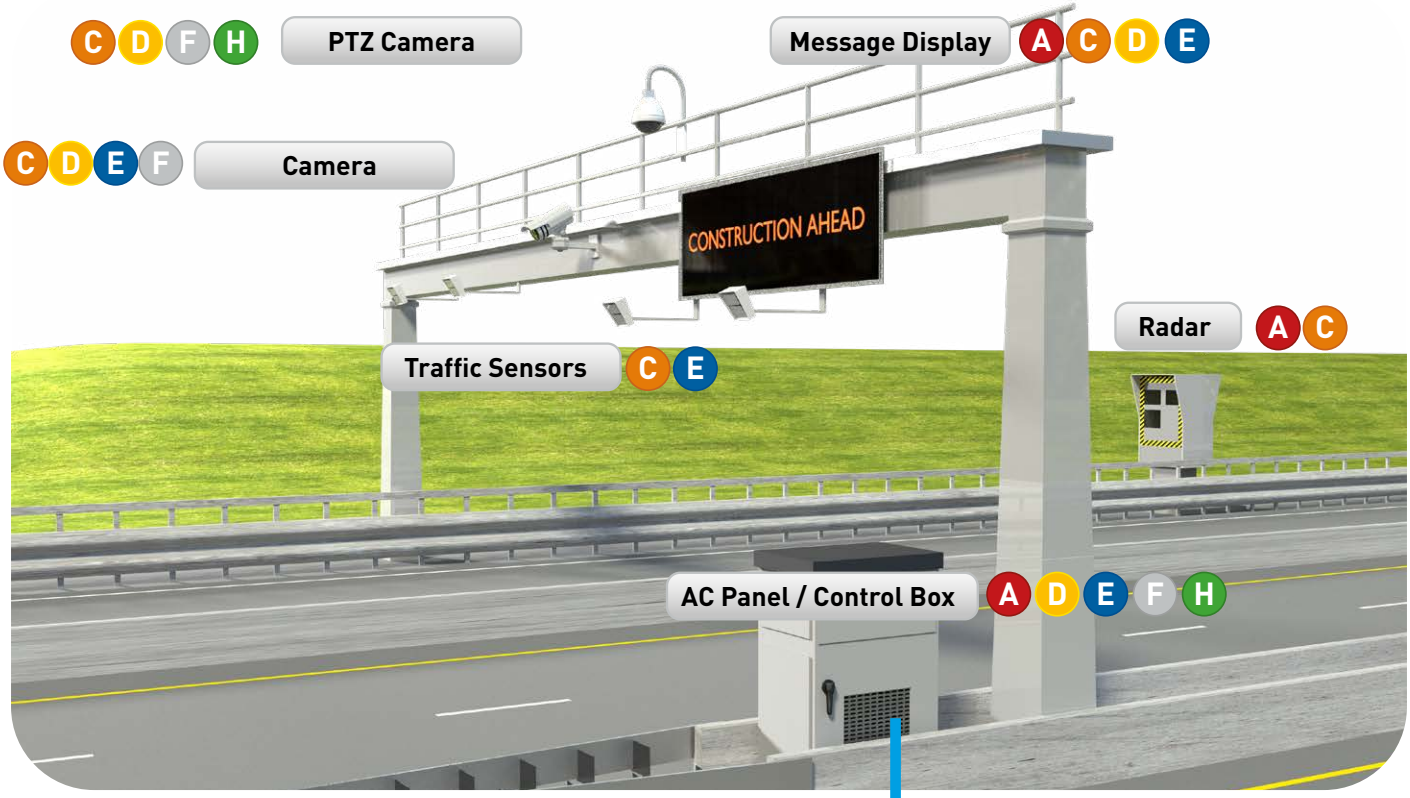


Traffic control, or Intelligent Transportation Systems (ITS) equipment, employ sensitive technology that must be protected from destructive overvoltages. Since decades, CITEL has manufactured a complete line of Surge Protective Devices (SPD's) to protect vulnerable equipment from the harmful effects of lightning strikes and other line disturbances. CITEL is a world leader in surge protection solutions and provides a wide range of specialized protective products and components specifically engineered for transportation applications.

Surge Protective Devices are specifically engineered to protect ITS systems from these harmful surges so that the system can continue to operate, even after lightning surges. The SPD's are designed to react to any overvoltage that is experienced in the system, such as one that would be caused by lightning or switching events. The instant a surge is detected, the SPD is activated and goes to work. By catching, absorbing and safely redirecting the electrical surge, a SPD prevents damage or destruction of your equipment. In addition the SPD stops the surge from propagating throughout the system.

SPD's make it possible to easily prevent surges from destroying your ITS equipment. By conducting a risk analysis on your specific ITS system, you can determine the level of protection needed in order to maintain optimal, safe functionality and to prevent costly repairs or equipment replacement. Performing a risk analysis is based on factors such as the size of installation, location, the configuration of your ITS system and can be quickly done by a surge expert. It's a small step that can have a big impact on the overall effectiveness of your ITS system!

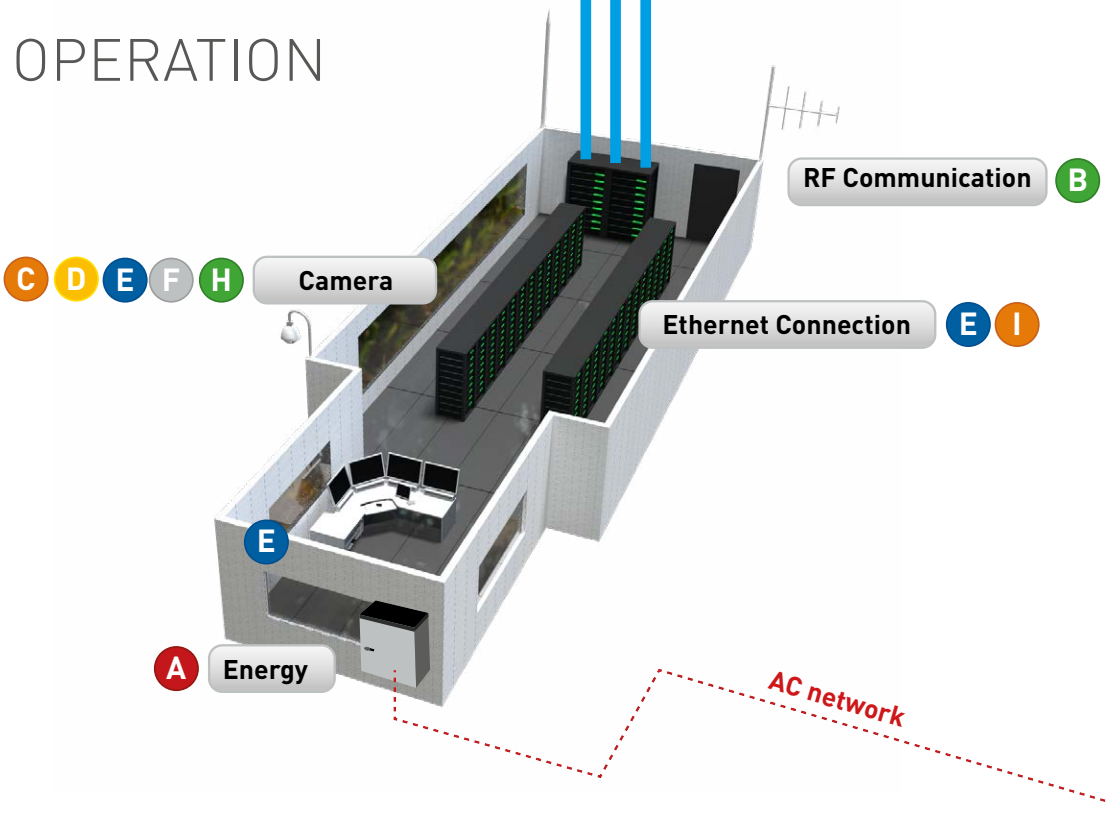
SURGE PROTECTIVE DEVICES FOR TRAFFIC REMOTE MONITORING



Fiber Optic Network

Fiber Optic Network

SPD FOR OPERATION CENTER



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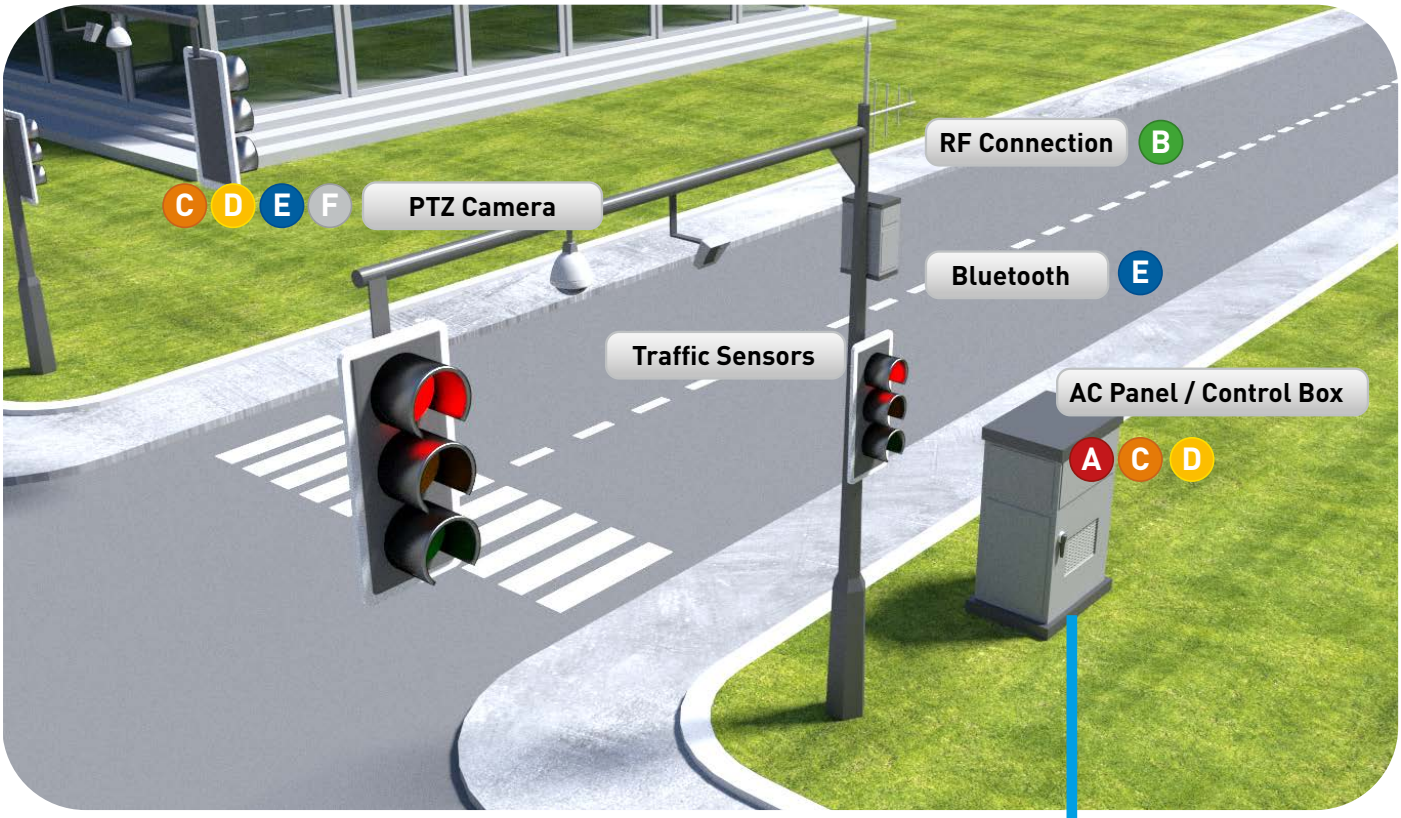
SURGE PROTECTIVE DEVICES FOR INTERSECTIONS



A AC Power SPD

Complete range of SPDs for every type of AC network. This wide range is splitted in Types following IEC standards: Type 1 for high exposure areas, Type 2 for regular exposure and Type 3 for terminal protection.
Most of AC power SPDs are using pluggable feature in order to ease the maintenance operations.
VG technology (Patented) versions are also available and will bring better efficiency and reliability.

D DC power SPD

As AC power network, DC power networks could be disturbed by surge voltages. CITEL offers a range of SPDs for this purpose. Several DC voltages and surge discharge capabilities. DC power SPDs are using pluggable feature in order to ease the maintenance operations. DIN rail mounting.

C Dataline SPD

Dataline interfaces are especially sensitive to surges. SPDs on datalines are highly recommanded to bring the highest safety level for intelligent transportation systems. CITEL range can answer to all the dataline and signal networks. SPD available for DIN rail mounting, with pluggable feature or very small dimensions in case of numerous I/O to protect.

B Coaxial SPD

CITEL offers a wide range of SPDs dedicated for HF coaxial lines. To protect equiment connected to radio systems and video coaxial cables. Available in the main coaxial connector versions, they are designed to to be in series with the lines and connected the earthing network. Bandwidth up to 6 GHz.

E Ethernet & POE SPDs

when LAN is used and the transmission is performed through copper lines (instead fiber optic), the risk of damage due to surge voltages is huge. Dedicated SPDs must be used at the both ends. CITEL has designed a range of SPDs for Ethernet line or PoE surge protection of the remote devices, as LAN connected computers, Wifi Hotstops, IP Survey Cameras. The surge protectors are equipped with RJ45 connectors for easy installation and are available up to Category 6 cabling and 10Gbit Ethernet. Indoor or Outdoor applications.

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SURGE PROTECTIVE DEVICES FOR WEIGH STATIONS

I Ethernet & POE 19'' rack SPD

when LAN is used and the transmission is performed through copper lines (instead fiber optic), the risk of damage due to surge voltages is huge. Dedicated SPDs must be used at the both ends. CITEL has designed a range of multiport SPDs with 19'' rack format for Ethernet line or PoE surge protection at the hub location on the operation centre.
The 19'' rack surge protectors are equipped with RJ45 connectors for easy installation and are available up to Category 6 cabling and 10Gbit Ethernet. From 12 to 32 surge protected ports by panel.

F Video coaxial SPD

When video signal for survey are used through coaxial cables, SPDs are necessary on the lines. CITEL offers a wide range of coaxial line surge protectors to be used directly on the cable. These SPDs are in compliance with all types of connectors and bandwiths.

H Combined AC/Data SPD

Analog Video survey cameras must be protected against surge voltages as they are especially exposed. To provide efficient protection, SPD must be installed on the video coaxial line but also on the power supply (AC or DC), and control lines (pan, tilt, rotate, zoom operations). MSP-VM range from CITEL is a «3-in-1» SPD to protect correctly all the incoming connections of the survey cameras.

G Load Cell SPD

Weighting systems could be damaged by lightning surges and their failures will create huge problems in equipement destruction and production interruption. CITEL has developped a specific SPD for the surge protection of the load cells (BP-LC).

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A AC POWER SURGE PROTECTORS

CITEL model	DAC1-13VGS-31-275	DAC1-13VGS-11-275
AC network	230/400 Vac 3-phase+N	230 Vac single phase
SPD Type	Type 1 + 2 + 3	Type 1 + 2 + 3
Nominal discharge current	20 kA/pole	20 kA/pole
Impulse current (10/350µs)	12.5 kA/pole	12.5 kA/pole
Dimensions (width)	72 mm	36 mm
Mounting	DIN rail	DIN rail
Remote signalling	yes	yes

CITEL model	DAC50VGS-11-275	DAC40CS-11-275	DAC15CS-11-275
AC network	230 Vac single phase	230 Vac single phase	230 Vac single phase
Max. operating voltage	Type 2 + 3	Type 2	Type 3
Nominal discharge current	20 kA/pole	20 kA/pole	5 kA/pole
Maximum discharge current	40 kA/pole	40 kA/pole	15 kA/pole
Wiring	36 mm	18 mm	18 mm
Mounting	DIN rail	DIN rail	DIN rail
Remote signalling	yes	yes	yes

B COAXIAL PROTECTORS

CITEL model	P8AX09-B/MF	P8AX50-N/MF
Typical application	RF transmission	RF transmission
Configuration	Connector BNC Male/Fem	Connector N Male/Fem
Max HF Power	25 W	780 W
Bandwidth	DC-4 GHz	DC-4 GHz
Nominal discharge current	5 kA	5 kA
Maximum discharge current	20 kA	20 kA
Mounting	on coaxial connector or feedthrough	on coaxial connector or feedthrough

C TELECOM/DATALINE SURGE PROTECTORS

CITEL model	DLA170	DLA-48D3	DLA2-24D3	DLA-12D3
Typical application	Telecom line	Fieldbus-48V line	4-20 mA	RS232-RS422-RS485
Configuration	1 pair + shield	1 pair + shield	1 pair+ shield	1 pair+ shield
Nominal line voltage	150 V	48 V	24 V	12 V
Max. line current	300 mA	300 mA	300 mA	300 mA
Nominal discharge current	5 kA	5 kA	5 kA	5 kA
Maximum discharge current	20 kA	20 kA	20 kA	20 kA
Mounting	DIN rail	DIN rail		

D DC POWER SURGE PROTECTORS

CITEL model	DDC20CS-20-38	DDC30CS-20-65
DC power network	24 Vdc	48 Vdc
Nominal discharge current	10 kA	15 kA
Maximum discharge current	20 kA	30 kA
Dimensions (width)	18 mm	18 mm
Mounting	DIN rail	DIN rail
Remote signalling	yes	yes

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E ETHERNET & POE SURGE PROTECTORS

CITEL model	MJ8-POE-C6A	MJ8-C6A
Typical application	POE++ line	10Gigabit Ethernet
Configuration	1-port SPD - shielded RJ45	1-port SPD - shielded RJ45
Nominal line voltage	48 V	5 V
Max. line current	1.2 A	1 A
Nominal discharge current	2 kA	2 kA
Maximun signal frequency	250 MHz	250 MHz
Mounting	Flange, Scrw lug, DIN rail	Flange, Scrw lug, DIN rail

F COAXIAL SURGE PROTECTORS

CITEL model	DIN-BNC-HD	CXC06-B F/M
Typical application	Video Coaxial Line	Video Coaxial Line
Configuration	BNC connector Fem/Fem	BNC connector Fem/Male
Nominal line voltage	5 Vdc	5 Vdc
Max. line current	750 mA	750 mA
Nominal discharge current	5 kA	5 kA
Maximun signal frequency	100 MHz	100 MHz
Mounting	Din rail or multiport on 19'' rack	on cable

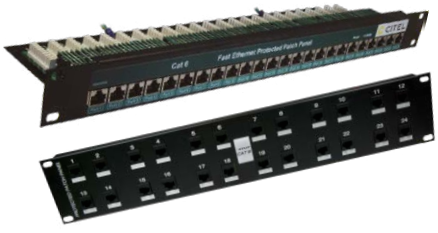
G LOAD CELL SURGE PROTECTORS

CITEL model	BP-LC
Typical application	Load cell protection - 4 or 6 wires weighbridge system
Nominal line voltage	10 Vdc
Max. line current	300 mA
Maximum discharge current	20 kA (L/PE)
Mounting	outdoor/indoor - IP65

H COMBINED AC/DATA SURGE PROTECTORS

CITEL model	MSP-VM
Typical application	Analog video survey camera SPD
Configuration	3-port surge protection = AC/Video/Data
Nominal Power supply voltage	12 Vdc, 24 Vdc or 230 Vac
Nominal discharge current	5 kA
Maximum discharge current	10 kA
Mounting	Din Rail

I ETHERNET & POE 19'' RACK SURGE PROTECTORS



CITEL model	PL24-CAT6	RAK16-POE-A
Typical application	10 Gigabit Ethernet SPD	PoE line SPD
Configuration	19'' rack - 24 ports - RJ45 connectors in/out	19'' rack - 16 ports - RJ45 connectors in/out
Nominal line voltage	5 Vdc	48 Vdc
Nominal discharge current	2 kA	0.5 kA
Maximun signal frequency	250 MHz	100 MHz
Mounting	19'' rack	19'' rack

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