



# CITEL

**SURGE PROTECTION** FOR  
**Water treatment facilities**  
**and remote management**

[www.citel.fr](http://www.citel.fr)

# COMMON WATER & WASTEWATER APPLICATIONS

As the technology for Water & Wastewater treatment plants becomes more sophisticated, the risk of damage caused by lightning strikes and power line disturbances become intolerable..

To assure the protection of these installations, it is necessary to deploy a coordinated system of surge protection devices (SPD) to assure continuous operation.

## EQUIPMENT:

FLOW METER, CHLORINE ANALYZER, TEMPERATURE SENSOR, LEVEL SENSOR, PUMP, CONTROL CIRCUIT, ETC...

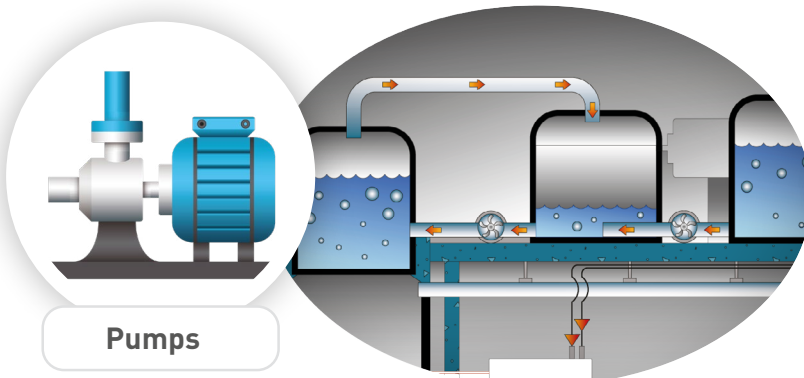
## Networks:

- AC power line
- AC control circuit
- Telecom and Data line: 4-20mA, RS422/485, Ethernet POE, Wifi, Telecom, etc.

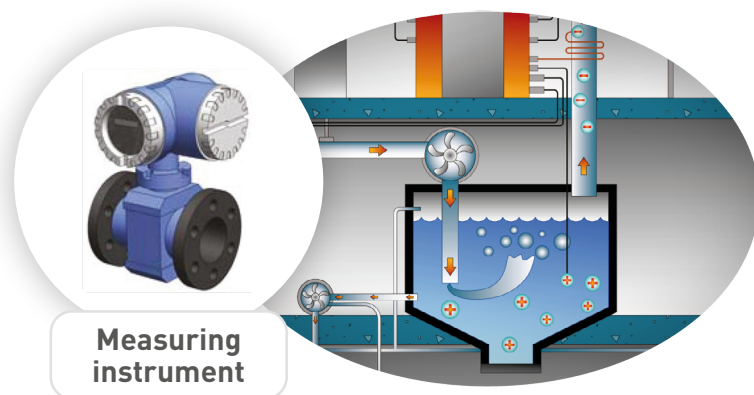
## Main Threats:

- Switching Transients
- Lightning Strike to nearby ground
- Lightning Strike to facility

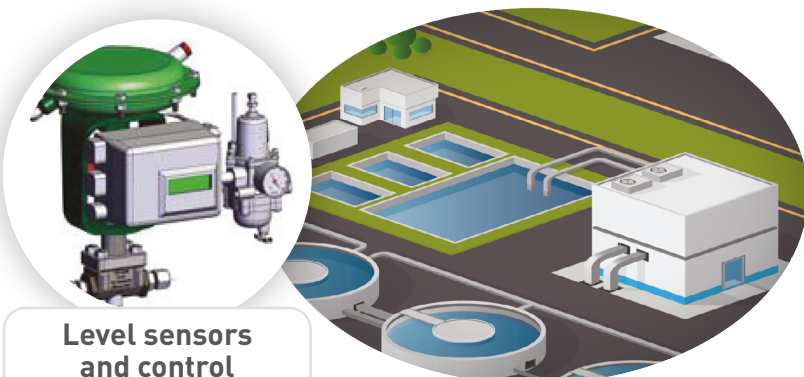
### Pumps and pump control systems



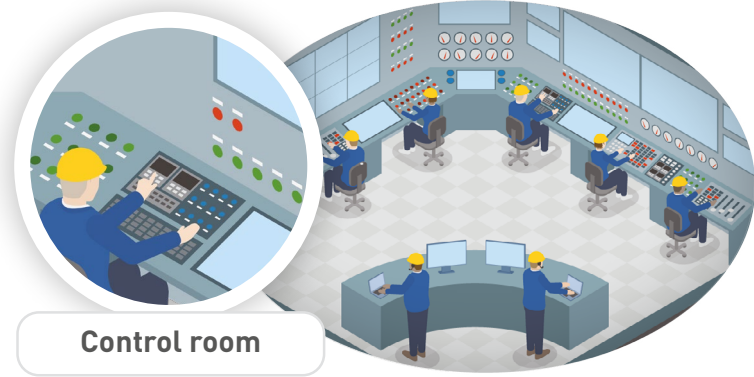
### Monitoring of the treatment system



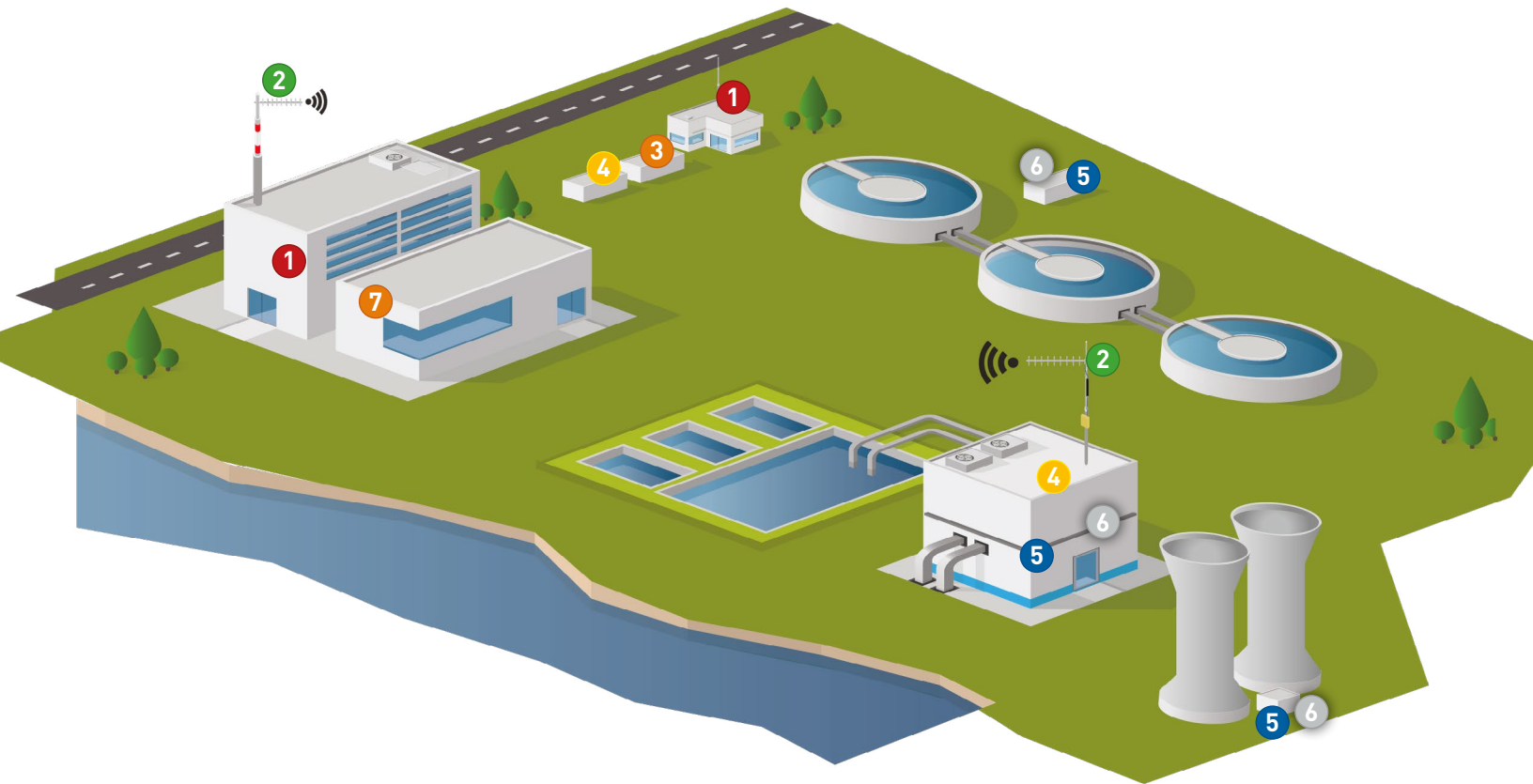
### Operation of the treatment system



### Control system and remote management



# IMPLEMENTATION OF COORDINATED SYSTEM OF PROTECTION AGAINST TRANSIENT OVERVOLTAGES



## Location/Model

AC power - Main electrical panel	1	DAC1-13VG /DS250VG
Coaxial antenna / Radio wireless	2	P8AX
AC power - Distribution panel	3	DAC40C
AC power - Control circuit	4	DAC15C
Remote management	5	DAC15C
Telecom / Data - Ethernet / POE	6	DLA / MJ8-POE-C6A
Control room	7	DAC50/MJ8/DLA

# PROTECTION OF FACILITIES

## AC NETWORK PROTECTION

### 3-phase Type 1 surge protectors



DAC1-13VG



DS250VG

Main Electrical Panel		
CITEL model	DAC1-13VGS-31-275	DS254VG-300/G
Part number	821730244	2756
Network	230/400 V 3-phase+N	230/400 V 3-phase+N
SPD type	Type 1+2+3 - Pluggable - DIN rail	Type 1+2+3 - Monobloc - DIN rail
Max. AC operating voltage	275 Vac	255 Vac
Nominal discharge current (In)	20 kA	30 kA
Impulse current by pole (Iimp)	12.5 kA	25 kA
Protection level (Up)	≤ 1.5 kV	≤ 1.5 kV
Admissible short-circuit (Iscsr)	50 000 A	50 000 A
Standards	IEC 61643-11 / EN 61643-11 / UL1449 ed.5	

### 3-phase Type 2 surge protectors



DAC40C



DAC50

Distribution panel	
CITEL model	DAC40CS-31-275
Part number	821520222
Network	230 V 3-phase+N
SPD type	Type 2 - Pluggable - Compact - DIN rail
Max AC operating voltage L-N	275 Vac
Nominal discharge current (In)	20 kA
Max. discharge current (Imax)	40 kA
Admissible short-circuit (Iscsr)	10 000 A
Standards	IEC 61643-11 / EN 61643-11 / UL1449 ed.5

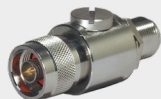
Control room	
CITEL model	DAC50S-31-275
Part Number	821110234
Network	230/400 V 3-phase+N
SPD type	Type 2 - Pluggable - DIN rail
Max AC operating voltage	275 Vac
Nominal discharge current (In)	20 kA
Max. discharge current (Imax)	50 kA
Protection level (Up)	1.25 kV / 1.5 kV
Admissible short-circuit (Iscsr)	50 000 A
Standards	IEC 61643-11 / EN 61643-11 / UL1449 ed.5



DAC15C

Remote management	
CITEL model	DAC15CS-31-275
Part number	821620222
Network	230/400 V 3-phase+N
SPD type	Type 2 - Pluggable - Compact - DIN rail
Max AC operating voltage L-N	275 Vac
Nominal discharge current (In)	5 kA
Max. discharge current (Imax)	15 kA
Admissible short-circuit (Iscsr)	10 000 A
Standards	IEC 61643-11 / EN 61643-11 / UL1449 ed.5

## HIGH FREQUENCY LINE PROTECTION



P8AX

CITEL model	P8AX range
Network	Coaxial access protection
Connectors	N,TNC,BNC,F,SMA,7/16
Max power	up to 2000 W
Frequency range	> 3.5 Ghz
Nominal discharge current (In)	5 kA
Max. discharge current (Imax)	20 kA
Impulse current (Iimp)	2.5 kA
Mounting	Feedthrough

## DATALINE AND TELECOM PROTECTION



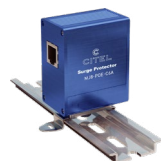
DLA170

DLAS1

### SURGE PROTECTORS FOR DATA AND TELECOM LINES

CITEL model	DLA-170	DLAS-24D3	DLAS-12D3	DLAS-06D3
Part number	6406011	641303	641302	641301
Network	RTC, ADSL2, VDSL2	4-20 mA	RS232, RS485	RS485
Max. DC operating voltage	170 V	28 V	15 V	8 V
Nominal discharge current (In)	5 kA	5 kA	5 kA	5 kA
Max. discharge current (Imax)	20 kA	20 kA	20 kA	20 kA
Nivel de protection (Up)	220 V	40 V	30 V	20 V
Standards	IEC 61643-21 / EN 61643-21 / UL497A			

### SURGE PROTECTORS FOR POE++ NETWORKS



MJ8-POE-A

CITEL model	MJ8-POE-A
Part number	581519
Network	Gigabit Ethernet (Cat.5E)
Max. DC operating voltage	60 Vdc
Nominal discharge current (In L/PE)	2 kA
Connectors	RJ45
Standard	IEC 61643-21 / EN 61643-21 / UL497B /IEEE 802-3af / 3at /3bt

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