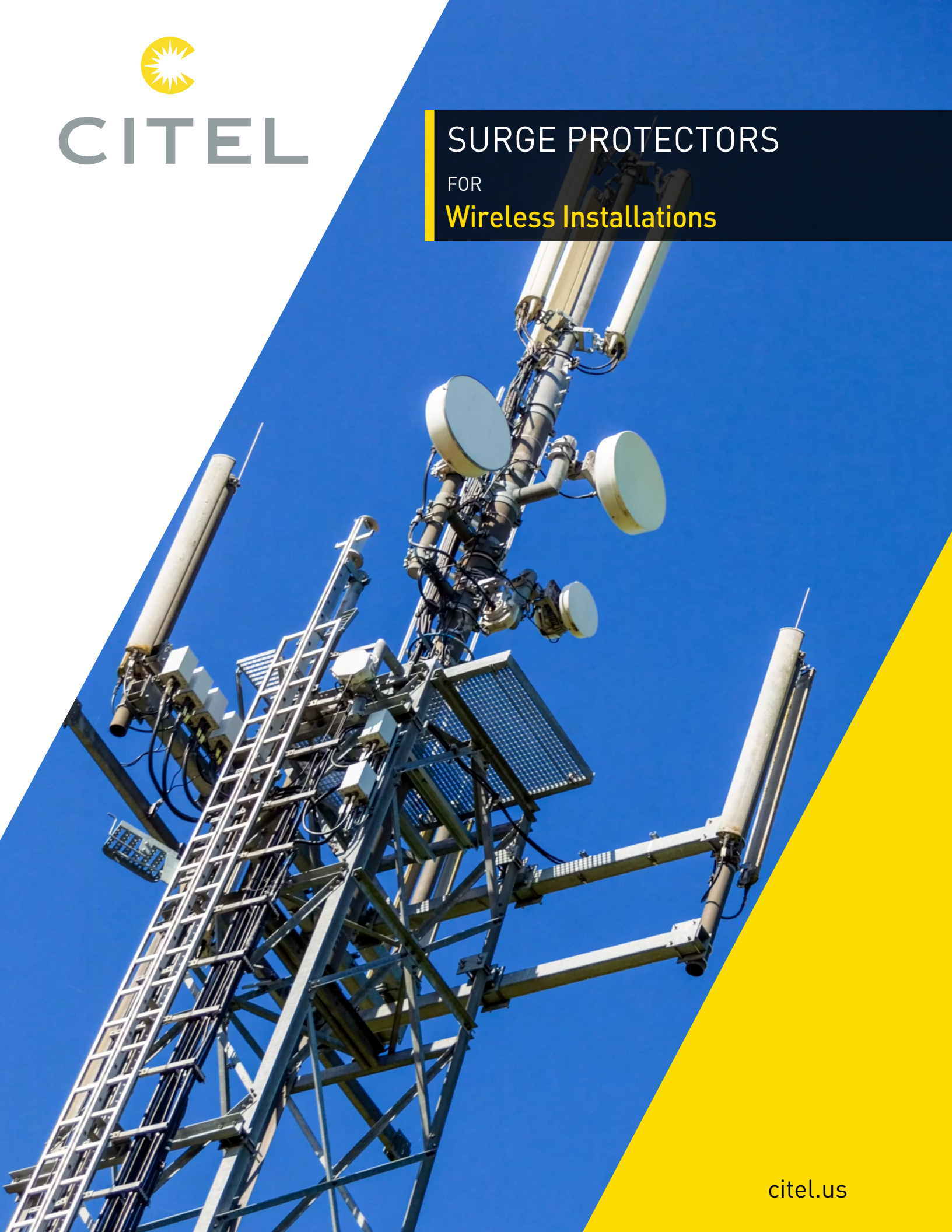
CITEL

SURGE PROTECTORS

FOR

Wireless Installations



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



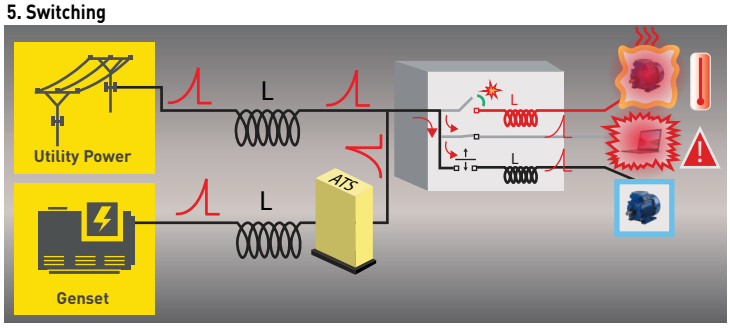
3. Strike on Overhead Lines



4. Coupling



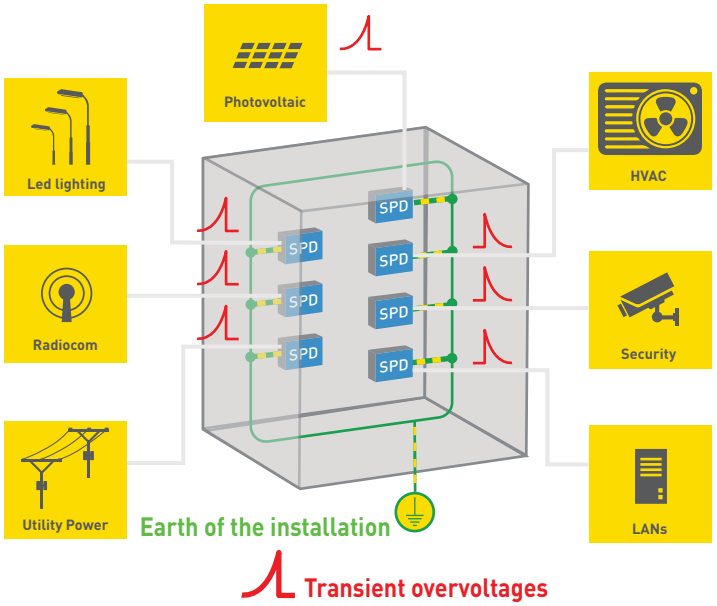
5. Switching



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 WIRELESS APPLICATIONS

As the technology for Wireless Communication becomes more sophisticated, the risk of damage caused by lightning strikes and power grid disturbances becomes more prominent. Key Wireless Communication Systems must deploy a coordinated series of Surge Protective Devices (SPDs) to ensure continuous operation.

Conventional Cellular Networks



Cell Tower



- 4G LTE Antenna
- 48V DC Power Supplies
- AC-DC Converters

Remote Radio Head Cell Towers



RF Transmitter

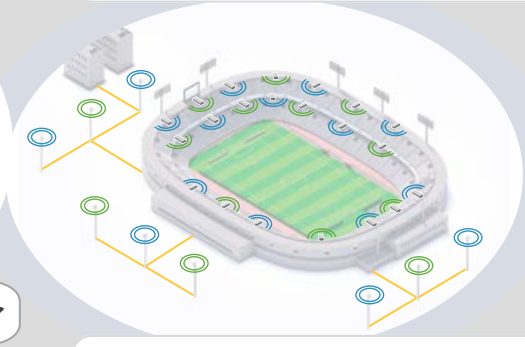


- Transmitters
- Coaxial Transmission Lines
- Antennas

Distributed Antenna Systems (DAS)



DAS Transmitter



- DAS Antenna
- Power Supplies
- Fault Managed Power Systems

Small Cells-5G



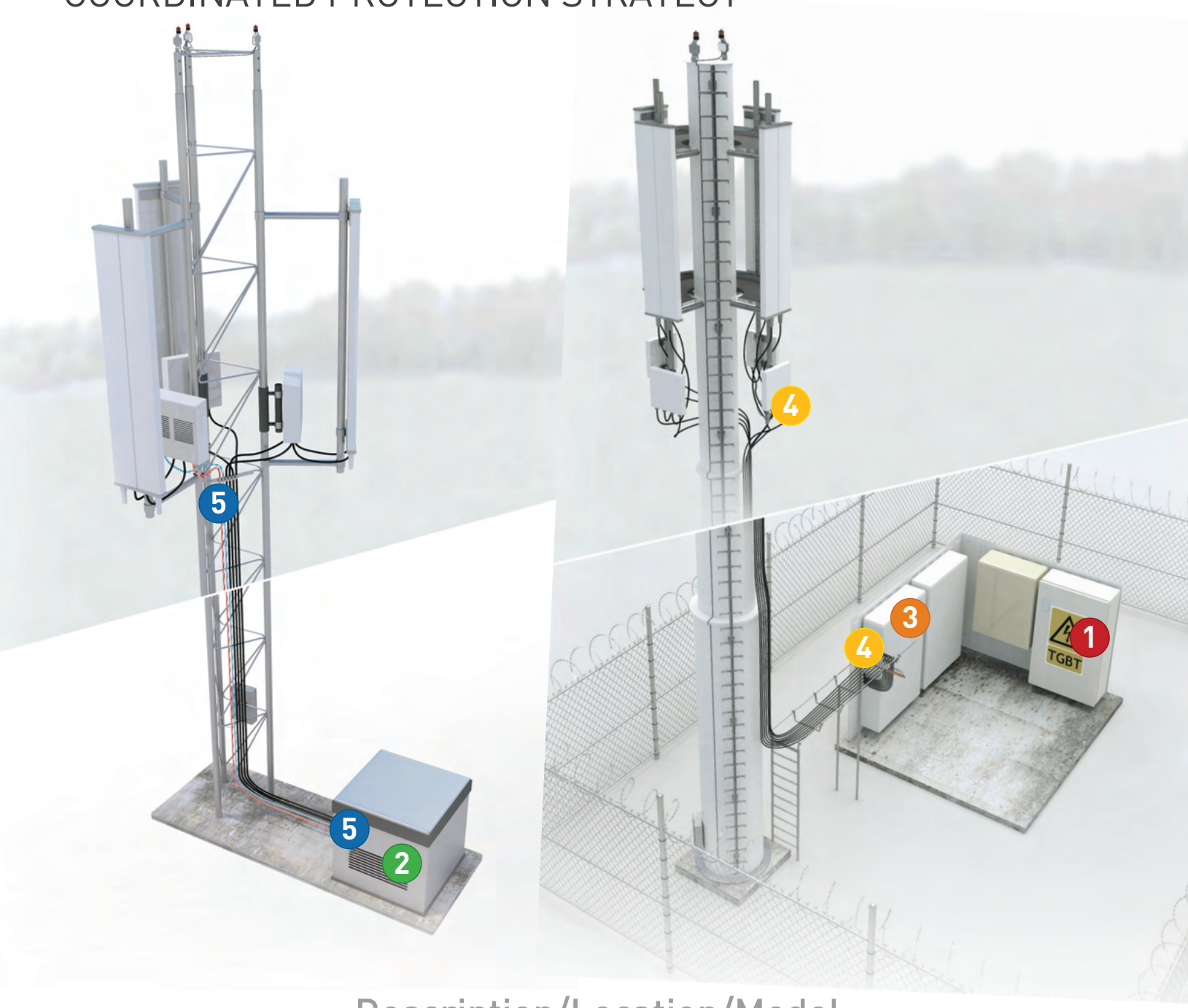
5G Tower



- 5G Antennas
- 48V DC Power Supplies
- AC-DC Converters

CITEL

COORDINATED PROTECTION STRATEGY



Description/Location/Model

AC Surge Protector - Type 1	1	MS200 Series
AC Surge Protector - Type 2	2	M50 Series
Ethernet Surge Protector	3	MJ8
RF Coaxial Surge Protector	4	PRC822S
DC Power Surge Protector	5	DS230S-48DC

CITEL

RECOMMENDED PRODUCTS (TECHNICAL CHARACTERISTICS)

AC & DC Power









Product	MS200	M50	DAC100US	DS240S
Application	Switchboard	Main Service Panel	Incoming AC Power	High Voltage DC
Voltage(s)	240, 277, 480 (AC)	120, 277, 240, 480, 600 (AC)	120, 240, 277, 480 (AC)	up to 350 (DC)
Phase	3D, 3Y		1S, 2T, 3D, 3Y	n/a
In (8/20µs)-kA	20			
Imax (8/20µs)-kA	220	50	100	40
UL Standard	Listed Type 1			Recognized Type 4CA

Ethernet & POE







Product	RAK	MJ8	LAN-10G-POE
Application	Indoor Rackmount Ethernet	Indoor Gigabit Ethernet & PoE	Outdoor 10 Gigabit Ethernet & PoE
Connection	RJ45		
Voltage(s)-(DC)	8	60	
Imax (8/20µs)-kA	1	16	
UL Standard	UL 497B		UL 497B (pending)

Coaxial SPDs







Product	P8AX	PRC	CXP
Application	Coaxial/RF		
Connection	N, F, BNC, SMA, TNC		N, F, BNC
Voltage(s)-(DC)	60	8	20
Imax (8/20µs)-kA	20	25	20
UL Standard	UL 497E		

USA
Hillsborough, NC
Tel: (954) 430 6310
Email: info@citel.us
Web: citel.us

France
Head Office
Sales Department
Paris
Tel: +33 1 41 23 50 23
Email: export@citel.fr
Web: citel.fr

Factory
Reims
Tel: +33 3 26 85 74 00

Germany
Bochum
Tel: +49 2327 6057 0
Email: info@citel.de
Web: citel.de

China
Shanghai
Tel: +86 21 58 12 25 25
Email: info@citelsh.com
Web: citel.cn

India
New Delhi
Tel: +91 11 4001 81 31
Email: indiacitel@gmail.com
Web: citel.in

Thailand
Bangkok
Tel: +66 (0) 2 104 9214
Web: citel.fr

U.A.E
Dubai
Email: info@citel.ae
Web: citel.fr

Colombia
Bogota
Email: export@citel.fr
Web: citel.fr

CITEL