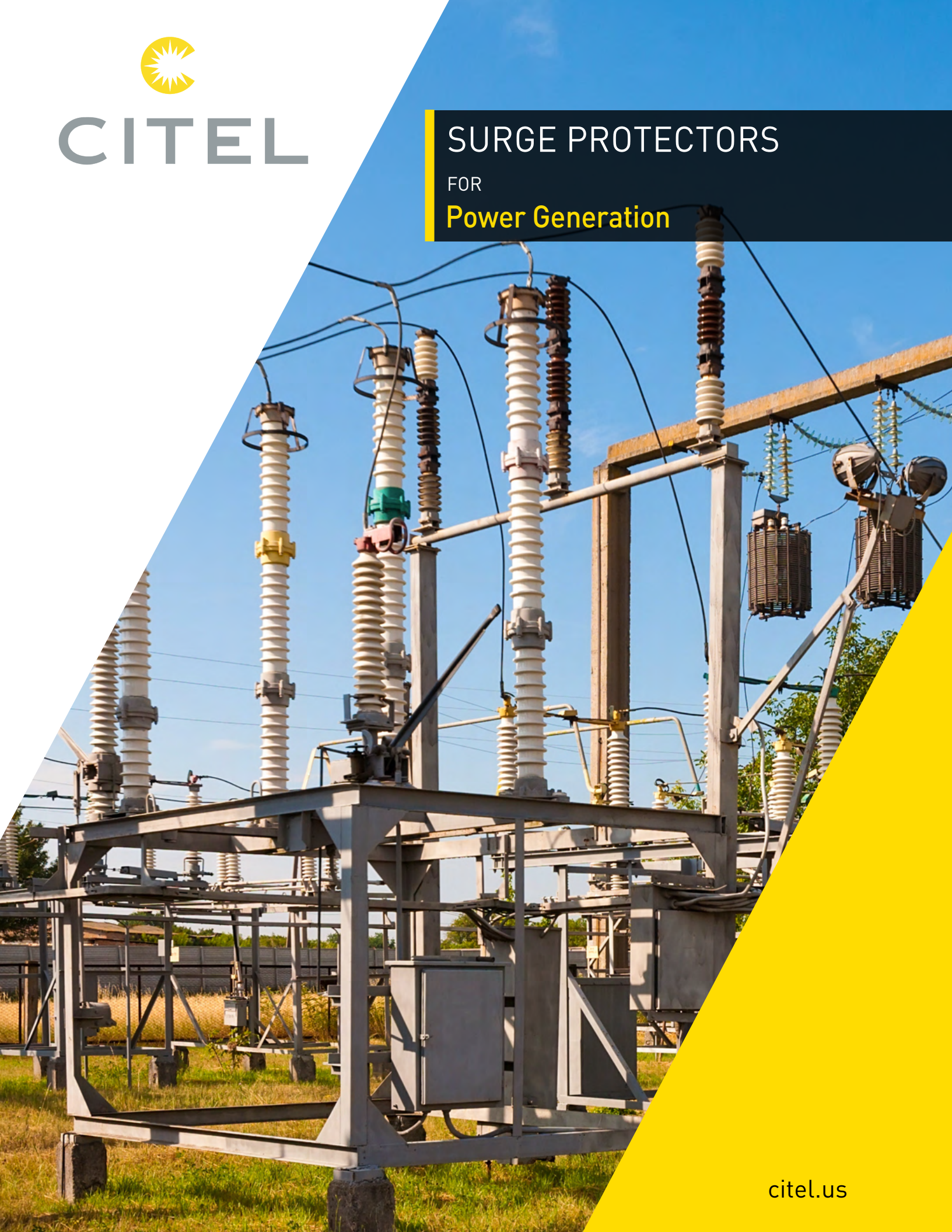
CITEL

SURGE PROTECTORS

FOR

Power Generation



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



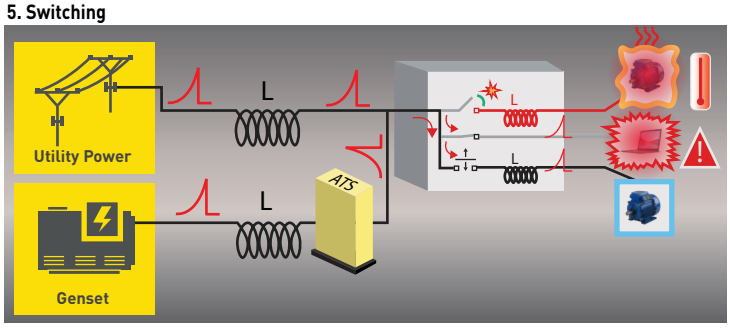
3. Strike on Overhead Lines



4. Coupling



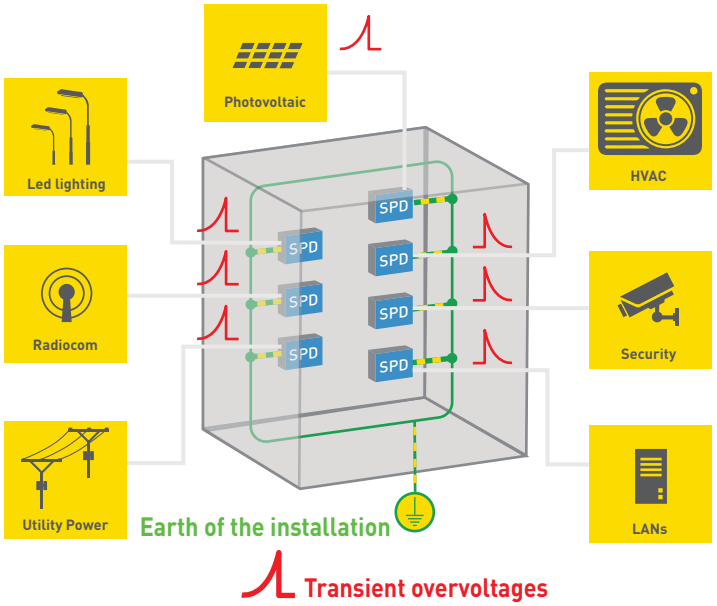
5. Switching



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 POWER GENERATION APPLICATIONS

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

Emergency Backup Power System



Backup Generator



- Utility Grid Connection
- Communication Links
- Automatic Transfer Switch (ATS)

Remote Power System with Storage



PV Support System



- Communication Links
- Solar Panels
- Inverters
- Combiners

Multi-Source Power System with Storage

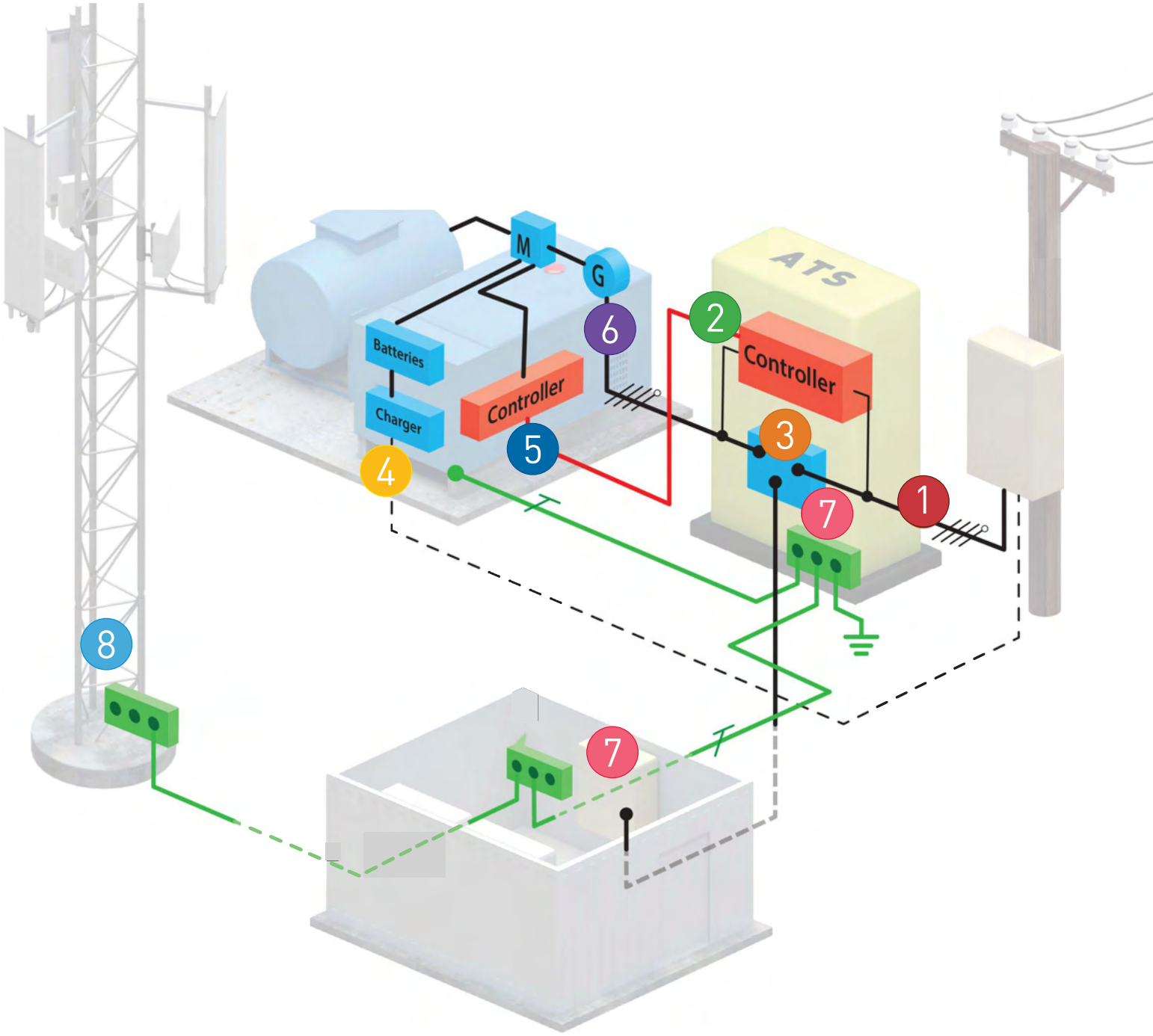


Power Storage Modules



- Battery Management Systems (BMS)
- Battery Modules
- Power Conversion Systems (PCS)
- Energy Management System (EMS)

COORDINATED PROTECTION STRATEGY



Description/Location/Model

ATS Line Side	1	MDS Series	Genset Relay Starter	5	DS240S
ATS Controller Relay Starter	2	DS220S-24DC	Genset Line Side	6	M50 Series
ATS Line Side Genset	3	MS200 Series	Main Panel & ATS Load Side	7	MS100 Series
Battery Charge Controller	4	DAC100US Series	Customer Equipment	8	Customer Specified

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RECOMMENDED PRODUCTS (TECHNICAL CHARACTERISTICS)

AC & DC Power



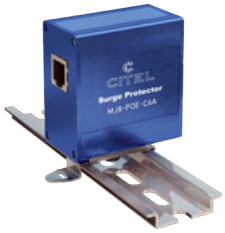


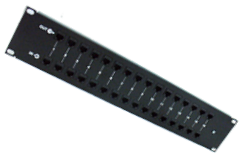




Product	MS200	M50	DAC100US	DS240S
Application	Switchboard	Main Service Panel	Incoming AC Power	High Voltage DC
Voltage(s)	240, 277, 480 (AC)	120, 277, 240, 480, 600 (AC)		up to 350 (DC)
Phase	3D, 3Y			n/a
In (8/20µs)-kA	20			40
Imax (8/20µs)-kA	440	50	100	80
UL Standard	Listed Type 1			Recognized Type 4CA

Ethernet & PoE







Product	MJ8-POE-C6A	RAK	LAN-10G-POE
Application	Indoor Gigabit Ethernet & PoE	Indoor rackmount Ethernet	Outdoor 10 Gigabit Ethernet & PoE
Connection	RJ45		
Voltage(s)-(DC)	60	8	60
Imax (8/20µs)-kA	16	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)	up to 400	8	60
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

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