

PRAGATI ELECTROCOM

CHARGE TRANSFER SYSTEM



Simple lightning rod systems divert a lightning stroke away from a protected facility. They do nothing to prevent a lightning stroke from occurring. The Charge Transfer System (CTS) is the state of the art lightning prevention system which neutralizes the charge differential between the cloud and the protected facility before the flashover point occurs. The flashover point is seen as lightning. The CTS leaks off the charge differential slowly before the flashover point is reached. The critical design parameters include the number, size and spacing of both the ionizer points and their conductive wires. CTS provide up to 100% prevention protection from lightning strokes.

The CTS works in three modes:

1. Eliminates the source of the stroke by discharging the thundercloud charge or the associated induced charge on the earth's surface.
2. Decreases the electrostatic field caused by a thundercloud charge around the object to be protected by creating a space charge of the opposite polarity.
3. Provides a bypass path for lightning strokes, thereby preventing direct strokes into the facility.

The CTS is a true lightning stroke prevention system. These are best suited for:

1. Protection of Power Transmission and Distribution Systems;
2. Protection of Towers;
3. Protection of Oil Storage Tanks and Reservoirs; and
4. Protection of Electrical Substations and like large areas.

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The size, shape, profile, length of pins & inter pin spacing of CTS is customized as per the object to be protected with consideration that electrostatic potential does not exceed 1.2 KV within protected area.

Construction: CTS consists of an ionizer, Ground current collector connected to a sound earthing and an interconnecting conductor.

1. Ionizer:

- i. It has dissipation pins made of stainless steel to dissipate continuous charge under lightning condition.
- ii. It is designed to generate minimum 500 mA current while applying under real thunderstorm condition.
- iii. Number of ionizing pins and their spacing is designed to generate adequate current to neutralize the cloud build up charge within 10 Sec.

2. Ground Current Collector (GCC):

- i. GCC is designed to collect any charge induced by the storm on the ground, regardless of the type of the soil in the facility. Size of the GCC is usually 70 Sq. mm. copper.
- ii. GCC is connected to a sound & maintenance free earthing.

3. Interconnecting conductors:

The interconnecting earth pit conductor provides a safe, redundant, low impedance path for GCC for dissipating charge to ionizer through a 70 Sq. mm copper conductor.

Stack Array

For use on industrial smoke/exhaust stacks. Corrosion resistant designs available.



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Hemisphere Array

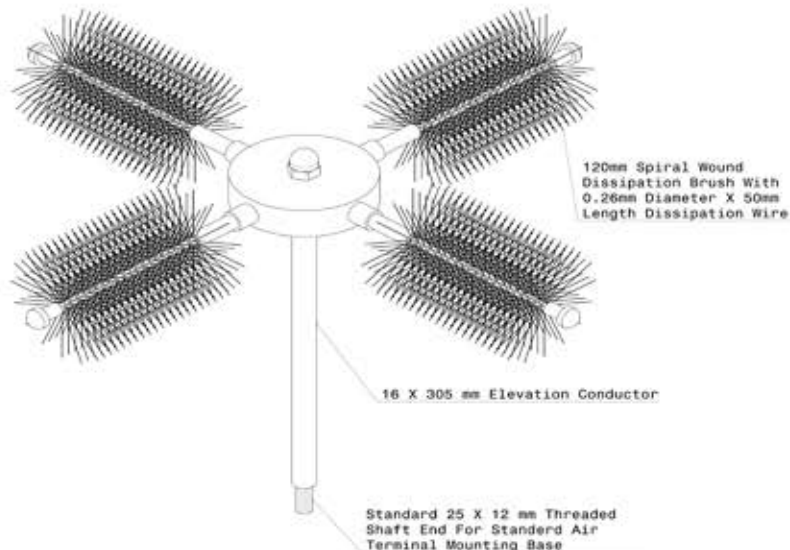
Can be placed on any industrial or commercial structure, including poles, buildings, and towers.



CTS provides a higher level of charge dissipation. It is constructed of Stainless Steel and utilizes four stainless steel dissipation brushes attached to a single elevation conductor for higher dissipation on a single mount. The CTS is ideally suited for protecting high mast light poles, security cameras, SCADA antenna systems, and smaller monopoles and towers used for communications.

Spiral Wound Dissipator Brush

- 120 mm Spiral Wound Dissipation Brush with .26 mm Diameter X 50 mm Length Dissipation Wire
- All elevation conductors are 16 mm diameter. Elevation conductors are available in various lengths.
- Standard 25 X 12 mm Threaded Shaft End For Standard Air Terminal Mounting Base



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Features:

- High grade stainless steel construction
- Lightweight and easy to install
- Corrosion resistant
- Independently tested at Central Power Research Institute, Bangalore, India
- Ideally suited for low cost protection

Applications:

Multiple use of CTS makes it suitable to use for standard Risk Protection of:



Buildings



Industrial Facility



Shelters



Homes



Warehouses



Monopoles



High Mast Lighting



Externally Mounted Cameras



Bridges



Petrochemical Storage Facility



Communication Towers