



STRUCTURAL PROTECTION FOR COMMUNICATION TOWERS

A THREE PART PROTECTION APPROACH

Lightning Master® protection system for communication towers are designed to reduce equipment damage and consists of three basic components:

- Bonding & Grounding
- Surge Suppression
- Structural Protection



Bonding & Grounding:

Bonding is simply a matter of taking all of the electrical and metallic masses in a facility and bringing them to the same electrical potential. The dissipators shall be electrically bonded to the tower upon which they are installed through their mounting clamps and brackets. If feasible, the tower should be grounded and each dissipator shall be provided with a contiguous path to ground. In the event of a separate bond to ground is provided on the tower, each dissipator shall be additionally bonded to that grounding system.

Grounding is a matter of bringing the bonded equipment mass to the potential of the surface of the earth which it occupies. The primary reason is personnel safety and the secondary reason is equipment protection. When it comes to grounding, we need to consider two types of grounding: low-impedance grounding of structures, and single-point ground potential referencing for services and equipment.

LightningMaster
Corporation 

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Surge Suppression:

Surge suppressors limit voltage on electrical operating systems, thereby reducing equipment damage. They are installed on the following systems:

- AC power on the main disconnect
- Sub-distribution panel feeding control house equipment
- Load cells, summing boxes and load cell computers
- Incoming Commercial Power lines
- Computer, telephone and data wiring



Computer, telephone and data wiring units take the form of a "power strip" and are located in the control room. Into these units are plugged the AC power cords feeding the computer equipment. Also plugged into these units are telephone, T1 and other data lines. These units are critically important to the protection of the plant. Note: In almost all instances of lightning damage to plant equipment, the wires running to these units had been disconnected.

Some surge suppression devices are equipped with status lamps or indicators. Others do not come equipped with indicators and require regular observation to ensure system is effectively operating. Additionally, miscellaneous inputs including wiring to moisture and other sensors on a plant. Since they are low voltage these items are not equipped with a status lamp.

Structural Protection:

Structural lightning protection consists of a series of air terminals and/or linear dissipators installed at the top of the tower. Number of air terminals depends on how tall the tower structure is. This reduces total static ground charge on the tower. These also retard the formation of streamers from the tower. These antenna dissipators are designed to not affect the performance or pattern of the antennas upon which they are installed.



Testimonial

"I would highly recommend to anyone that your system be installed in any building/facility that is prone to electrical surges."

-Ambrose S. Daigle III

About Lightning Master Corporation

Established in 1984, Lightning Master® is a global, full service, static solutions, lightning and surge protection manufacturing company. We serve a wide range of customers including oil, gas, chemical and other industrial facilities. Our complete line of products, systems and consulting services are backed by our worldwide customer service. Our track record of success in the Americas, Asia, Africa, Europe and the Middle East has established LMC as a global authority on lightning and static protection.