

# OPERATING PRINCIPLES

During a thunderstorm, winds within the storm cloud cause precipitation particles to collide. These collisions cause very small ice crystals to lose electrons while larger particles of soft hail gain electrons.

Upward winds within the cloud redistribute these particles and the charges they carry. The soft hail causes a negative charge build up near the middle and lower part of the storm cloud which, in turn, causes a positive charge to build up on the ground beneath the storm cloud.

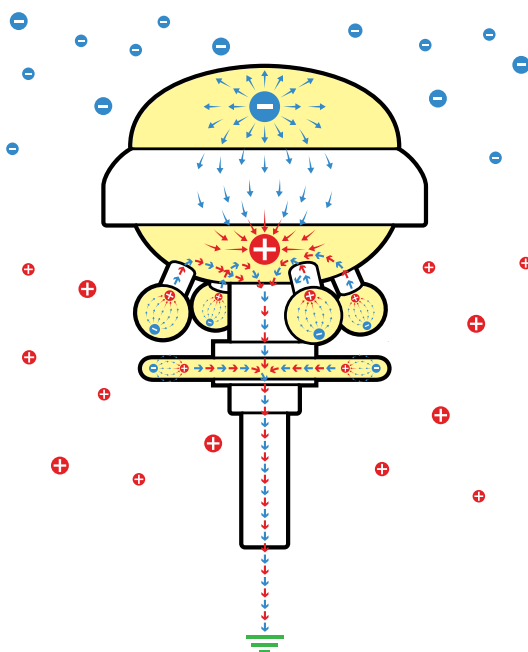
Eventually, when the charge difference between the negative charge in the cloud and the positive charge on the ground become large, the negative charge starts moving toward the ground. As it moves, it creates a conductive path toward the ground.


This path follows a zigzag shape as the negative charge jumps through segments in the air. When the negative charge from the cloud makes a connection with the positive charge on the ground, current surges through the jagged path, creating a visible flash of lightning.

## LIGHTNING CANNOT BE STOPPED. ENERGY BUILDING UP IN STORM CLOUDS NEEDS TO BE RELEASED. WHAT CAN BE CONTROLLED IS WHERE THAT LIGHTNING DOESN'T STRIKE!

The CMCE 120 acts as a modified capacitor collecting positive and negative charges from the atmosphere, structures beneath the device and the ground, reducing the difference of potential and eliminating the development of upward streamers.

By eliminating the development of upward streamers lightning is prevented from developing. Stepped leaders will continue to seek out a pathway to release its energy, but for areas protected by the CMCE 120 Lightning Suppressor those pathways are eliminated



 = Capacitor

Each capacitor has one of its electrodes referenced to earth.

The free electrode induces atmospheric charges contrary to that of the earth, balancing the charge of the electrodes which generates a potential difference.

This generates a flow of charges to earth in harmless milliamps.