

# BL-CX-LA High Gain Antenna Lightning Arrestor Installation Guide

## Installation Instructions

**Note:** Review the entire guide before beginning the installation.

1. Position the antennas in line of sight to each other to ensure the best reception. Keep the antenna clear from metal walls and surfaces.
2. Attach the antenna mount to a ridged 1.25" to 1.75" diameter pole.
3. Route the antenna coaxial (coax) cable from the antenna to the radio unit.
4. Use a lightning arrestor and a single point ground to help protect equipment.

## Important!

Single point grounding is the most important aspect of a grounding scheme and is the key to protecting your equipment from electro magnetic pulse (EMP) surge and lightning damage.



Antenna above surrounding structures with unobstructed path to other radios

Antenna mast 1.25" to 1.75" diameter

Coax

Tie-wrap coax along antenna mast

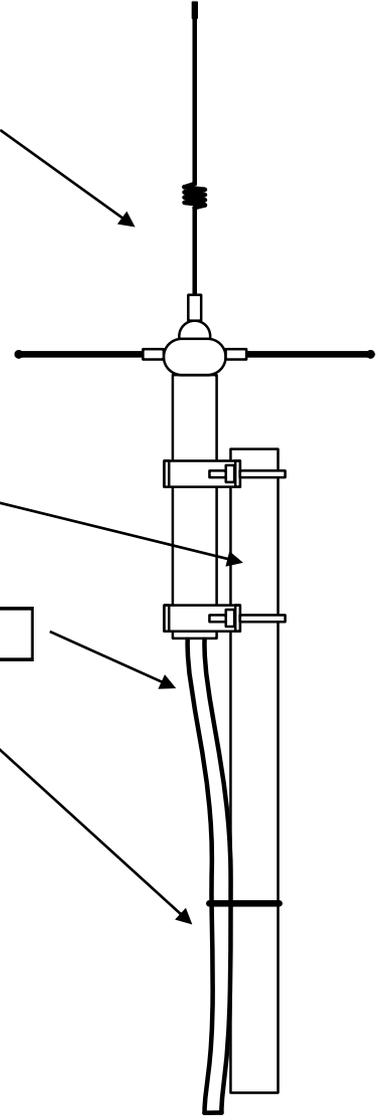
To Radio

Lightning Arrestor



To Antenna

To "Single Point" system ground



## Lightning and Surge Protection

- Lightning strikes are typically pulsed DC, but there is also an RF component at about 2.2MHz. The first pulse averages 18kA. Subsequent pulses are usually about half that. An average lightning strike consists of 3 to 4 pulses.
- Antenna and equipment should be connected to a single point earth ground. The best ground is an 8 ft or longer copper rod driven into the soil. Alternate grounds are (in order of decreasing effectiveness): building steel or rebar, cold water pipe, metal building skin, or electrical system ground.
- With pole and tower grounding, use copper braid or strapping for maximum energy dispersion.
- Ground all coax cable at the antenna and where the cable leaves the tower or mounting pole. If the antenna mounting pole is properly grounded, then the antenna and coax are grounded via the antenna mounting bracket system. The coax should also be grounded as low as possible where the cable leaves the tower or mounting pole.
- Locate the lightning arrestor as close to the radio equipment as possible.
- Ground the lightning arrestor using an AWG #8 wire and crimping or soldering to the wire lug. The other side of the wire should be connected to a solid earth ground. The connection point for the ground wire should always be closer to the single point earth ground than the radio equipment grounding location.
- Ground all of the components mentioned above together to a common node (such as the antenna mast) if each is a short distance away. This reduces the possibility of ground loops through different earth grounds. However, if the distance from the grounding point to the common node is greater than 20 ft, it may be better to use separate earth grounds. Test the voltage at each earth ground node to ensure ground potentials are equal.
- Waterproof all connections using a good waterproofing tape such as a self-annealing rubber tape. Use an outer coating of high quality vinyl electrical tape. Apply the tape in a spiral pattern so the overlaps will act as shingles to shed water.
- Use 3M™ DBR/Y-6 or equivalent connectors for all wire connections.

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## Recommended Tools and Materials

- Tools as needed for mounting hardware (drill, screwdriver, level, pliers, marker, tape measure, etc.)
- Tools and materials as needed for installing the mounting pole (cement, cutter, etc.)
- Miscellaneous tools including hammer and screwdriver
- Electrical power connection hardware (conduit, wire, 3M™ DBR/Y-6 (or equivalent) connectors, wire nuts, etc.) and related tools as needed

***Follow local electrical codes and practices!***

