

Array Solutions Improved ICE Coaxial Surge Arrestor Operation and Installation

One of the main differences of this type of coaxial arrestors compared to others is the static bleed inductor in combination with the gas discharge tube (GDT). The inductor core in the suppressor saturates due to the low frequency components of a surge and becomes a short circuit, thus relieving the gas tube of much of the current. That can happen before the gas tube begins to conduct, as gas discharge tubes exhibit a delay. In addition, the suppressor appears as a mismatched load when a surge is applied (combined operation of the inductor and gas tube) and much of the surge energy is reflected back to the antenna. Of course, the antenna is also a mismatched load to much of the surge energy, therefore some of that energy is reflected back to the surge suppressor, and goes back and forth. In the process, energy is dissipated in the feedline. Dissipating the energy among several components of the system helps these small suppressors to survive fairly large surges while being effective.

The gas discharge tubes used are typically rated for up to 20,000 Amperes. Their life is limited at that current level, though. The voltage across them while they are conducting is typically 15 to 20 Volts. Gas Discharge Tubes operate just like spark gaps. The advantage over a simple spark gap (a spark plug, for example) is that the characteristics are regulated by the composition of the gas and the electrodes and by the gas pressure in the tube. Thus they can achieve high operating voltage when not conducting, low operating voltage while conducting, while keeping stable characteristics that are independent of pressure and temperature. The working parts are protected from contaminants and oxidation, which normally affect simple spark gaps.

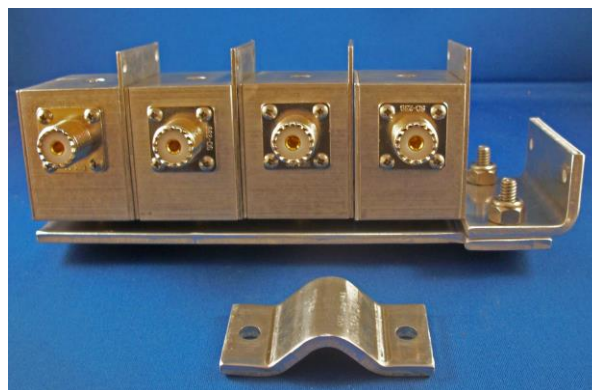
A major component of the ICE type suppressors is the blocking capacitor, which limits the energy that is passed to the rig while energy is being dissipated in the suppressor, feedline, and antenna.

Finally, a resistor of high value and high voltage rating is used to drain any remaining dielectric leakage or charge located on that side of the capacitor.



Installation:

1. Use of anti-oxidant paste like “NoALOX”™ available at most big box home improvement stores is recommended between metal surfaces that are dissimilar. You can also use this for the screws to keep them from galling and oxidizing. A small film is all you need.
2. The arrestors label is marked for Antenna side and Radio side. Hook your coax cables to these connectors. You should weather seal any RF connector not located inside a room or enclosure.
3. The body of the arrestor has removable top and bottom. Before removing them (4 screws), mark the connector as to which side is the Antenna side so you can reassemble the label top correctly in orientation. The arrestor is water tight, but you may chose to increase this by smearing a bead of silicon sealant on the top and bottom sides of the arrestor, and then put the covers back on.
4. The bottom flange cover has two holes in it for mounting to a plate or other bracket you need to use in your installation.
5. There is a #8x32 screw provided on the body of the arrestor so that you can mount the arrestor to the optional AS-300-SB Stacking Bracket. The Stacking Bracket allows for 4 arrestors to be mounted on top of each other. A great way to save space in an enclosure. The screw may also be used to mount the arrestor to a plate, etc. You will have to supply your own lock washer and nut.
6. The screw can also be used if you need to attach a wire to the arrestor body. In general the shorter the length to the ground rod system the better.



AS-300-SB Stacking Bracket with 4 Arrestors mounted

Thank you for your purchase of the Array Solutions Arrestor

Array Solutions

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