

## **Acutime Antenna Interface Surge Arrestor, Model 40-422-001 RevB, Installation and environmental precautions.**

This document is written to assist in the proper installation of the Zap-Tech GPS Surge Protectors. These procedures will provide the installer with the necessary information to perform a proper on-site weatherproof installation.

### **Warning This device protects only the antenna end of the installation:**

The Zap-Tech protector is designed to protect the antenna only. Attached equipment at the synchronization end of the cable will not be protected by this protector.

### **For synchronization end equipment protection, one of the following Zap-Tech protectors needs to be installed at the Synchronization end equipment:**

- 1) Evertz 5601 series - DB9 interface: Use Zap-Tech Model 40-422-095.
- 2) Trimble Synchronization - DB25 interface: Use Zap-Tech Model 40-422-250.
- 3) Zetron model 600 - DB15 interface: Use Zap-Tech Model 40-422-153.
- 4) Spectracom TSAT - PSI DB15 GPS Interface: Use Zap-Tech Model 40-422-155.
- 5) Symmetricom Airspan- DB15 GPS Interface: Use Zap-Tech Model 40-422-156.
- 6) Wave alert - DB25 GPS Interface: Use Zap-Tech Model 40-422-252

### **Tools/Materials Required**

Razor Knife/Diagonal cutters.

\*Silicone Grease Compound, (GC/Thorsen Electronics, P/N 10-8101)

Adhesive Lined Shrink tubing, 9-inch length (3M, Model EPS400)

Scotch Super 33 Vinyl or Scotch 70 Silicone Tape. RTV silicone sealant or Coax seal sealant.

Cable Ties, UV resistant, 7/16" x 3/16" (quantity 6).

Trimble Acutime Gold User Guide.

Medium Phillips screw driver bit and cordless drill / driver.

Heat shrink Gun.

### **Grounding Precautions**

#### **Important:**

If a non-metallic material is used for the support mast, the installer will need to provide a # 8 or larger diameter grounding wire between the protector's ground bushing and earth ground. Keep conductor to ground wire lengths to the minimum length possible. Insure that the antenna support mast is properly grounded to both earth and facility ground per applicable code. There should be no more than 0.05 Ohms resistance between the protector and earth ground.

### **Installation and waterproofing**

1. Apply a small dab of non conductive silicone grease compound onto the tip of the female connector on the protector. Also apply a thin layer onto the threads of the antenna male input connector.
2. Mate the protector's female connector with the antenna male connector. Excess grease should squeeze out. Turn the connector lock-ring ¼ turn making sure the lock-ring snaps closed. Apply additional silicone grease compound on either side of the connector lock-rings.
3. Carefully drive the provided #6 self drilling stainless screw into the antenna mast through the protector's grounding bushing. Use caution to prevent over torque of the grounding screw as it could cause damage to the protector. If connecting the protector to a grounding wire, use the supplied 10-32 sems screw to attach a grounding wire to the protectors grounding bushing.
4. Using tie wraps, route and secure the GPS antenna customer interface cable to allow enough extra cable length to route over the top of the protector to form a drip loop and under to reach the protector's lower connector. (See photo below).
5. Slide a 4 inch length of shrink tubing over the female end of the customer interface cable.

6. Apply a small dab of silicone grease compound onto the tip of the female connector of the customer interface cable and also apply a thin layer onto the threads of the protector's input connector.
7. Mate the customer interface female connector with the protector's male input connector. Excess grease should squeeze out. Turn the connector lock-ring  $\frac{1}{4}$  turn making sure the lock-ring snaps closed. Apply additional silicone grease compound on either side of the connector lock-rings.

**Important:**

Be sure to remove all excess silicone grease compound from the outside surface of the cable and connectors. There must be a clean surface to ensure adhesion of steps 8 and 9.

8. Position and install the shrink tubing, equally over the connector joint to allow at least a  $\frac{1}{2}$  inch overlap of the cable jacket at each end.
9. Secure the Scotch vinyl/silicone tape to overlap the shrink tubing installation. Start from one inch below the lower part of the tubing connection on the protector input cable end and wrap upward in an overlapping spiral fashion until the tubing is completely covered with at least  $\frac{1}{2}$  inch of extra wrap extending past the tubing at each end. This method allows for a roof-effect wrap and will repel water drip away from connector entry.



10. Secure all cables with cable ties and to pay attention to drip loops and cable strain considerations.
11. Clip all extending cable tie excess and dispose of all trash properly.

**Protector field bypass**

In the unlikely event that the protector would become disabled due to excessive surge energy beyond the protector's maximum ratings, the protector can be temporarily bypassed to allow restoration of the critical GPS Time source interface until the protector can be replaced. This can be accomplished by removing the disabled protector and connecting the customer input cable directly to the antenna's input connector. Replace protector as soon as practical.

**CAUTION!**

**Power supply precaution**

The protector is designed to pass a maximum of 3 watts continuous power to the antenna under normal operating conditions. Please ensure that the power supply used to drive the antenna incorporates internal over current protection to prevent damage to the protector in the event that a short condition occurs from water intrusion.

\*Zap-Tech recommends the use of Silicone Grease Compound, (GC/Thorsen Electronics, p/n 10-8101) or (equivalent "Automotive light bulb Grease") inside the connector. This compound is a soft, inert silicone grease with excellent dielectric properties. Its consistency is vaseline-like and it is white opaque in color. It provides an excellent dielectric coating which excludes moisture and prevents high voltage arcing.