Assembly Instructions for the
1-Wire® Weather Station V2.0/V3.0

Tools and Supplies Required (not included):

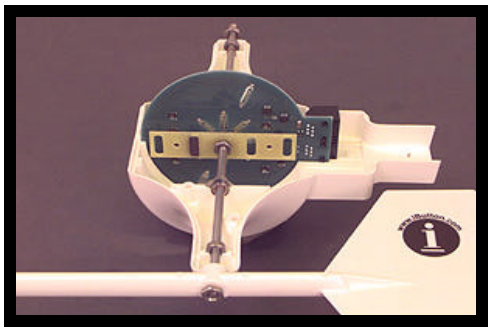
- Phillips screwdriver
- 3/8" wrench
- Drill with 5/32" bit
- "U" type mounting bracket (i.e., part number 15-826 from Radio Shack)
- Communication cable (Category 5 twisted pair recommended) - long enough to reach from computer to mounted weather station
- Clear sealant (i.e., GE's RTV-118 or other silicone)
- Mast, pole, or other object on which you wish to mount weather station
- Software
- PC running Windows 95/98

Assembly Instructions

Remove the contents and check against the enclosed packing list.

CAUTION: Handle the PCB carefully as the reed switches it contains are made of glass and easily damaged.

Remove the weather station housing from the bag. This is the main two-part plastic enclosure. Taking care to hold both plastic pieces, carefully remove the unit from the bag and place it on a flat surface. Remove one of the halves to expose the shafts and printed circuit board (PCB) inside. Note that the PCB is mounted in the center slot position with the component side facing the shaft/rotor having a single magnet (the black rectangular object imbedded in the rotor).



View from the bottom of housing, showing component side of PCB facing wind direction rotor frame assembly. Notice that the wind direction rotor has a single magnet and is aligned parallel to the wind vane.

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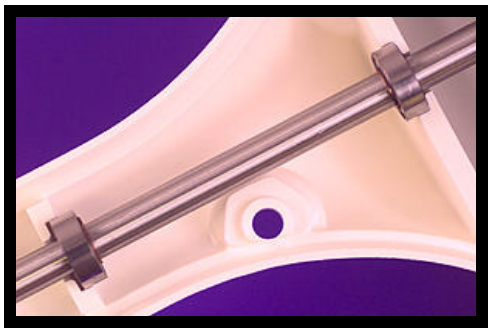
Tel(4)215-3166 y (4)215-3336 e-mail:infoaag@aag.com.mx, http://www.aag.com.mx

Locate the wind vane (the piece resembling an arrow) and attach it to the shaft/rotor combination having one magnet. To do this, remove the outer 10-32 nut at the end of the shaft and slip the vane onto the shaft, with the remaining 10-32 nut seated firmly within the nut-shaped cavity on one side of the wind vane. Align the vane and rotor on the other end of the shaft so they point in the same direction, with the magnet on the same side as the point of the wind vane. Replace and tighten the 10-32 nut removed at the start of this assembly. Place the completed assembly into the housing, making sure the bearings are positioned next to their stops and fitted into the niches provided for them in the housing.

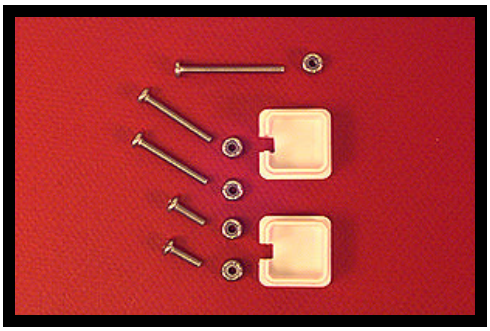


Seating of bearings into housing. Note that the bearings are positioned against their retaining clips, and on the inside of the plastic wall.

Replace the other housing half after making sure that the PCB is mounted in the center slot position with the component side facing the wind vane rotor assembly, and after rotating each shaft to make sure it spins freely and that the rotors do not hit anything. Recheck each reed switch carefully for cracks or breakage prior to closing the weather station case.

Insert two 6-32 x ½" screws into the two outer screw holes in the housing, and fasten them with 6-32 locking hexnuts.

Insert two 6-32 x 1 1/8" screws into the two inner screw holes in the housing, and fasten them with 6-32 locking hexnuts.



Hardware supplied with the weather station kit. The two pairs of screws and locknuts fasten the housing together. The single long screw and locknut fasten the square aluminum tube to the housing. Cut or file notches in the two plastic end caps similar to those shown above for the wire to enter and exit the tube.

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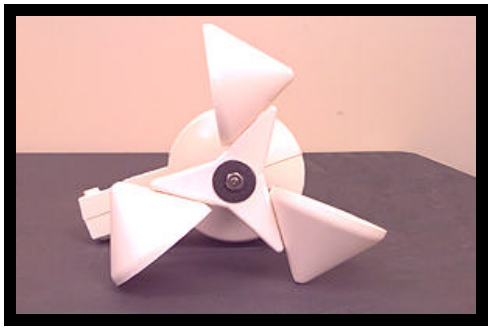
Locate the wind cup assembly and attach it to the remaining shaft. To do this, remove the outer 10-32 nut and 1" dia. washer at the end of the shaft, slip the wind cup assembly over the shaft, with the hollow tube portion going down over the top of the housing, and fit onto the remaining 10-32 nut. Replace the 1" dia. washer and 10-32 nut, and tighten in place.



View from the top of the wind speed assembly, showing 1" diameter washer and nut in place

NOTE: At this point the weather station is functional and may be tested by connecting it to a computer with the included 8-ft. coiled test cord and the DS9097U-009 COM port adapter. The necessary software may be downloaded from the Dallas Semiconductor Web site at **www.iButton.com/weather** or **www.aag.com.mx/download**. You will need to install both TMEX SUL v3.1 (install first) and the 1-Wire® Weather software. Both are available without charge.

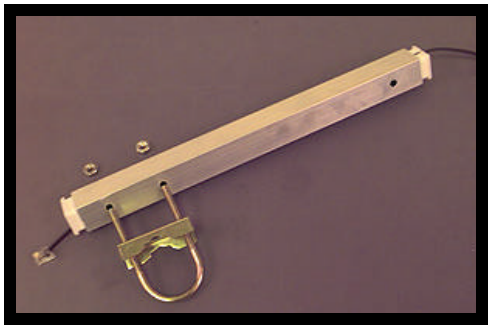
When starting the 1-Wire Weather Station software the first time, it will be necessary to teach the computer the unique identity of the eight cardinal compass points defined by the electronics on the weather station PCB. This is accomplished by rotating the wind vane slowly in a clockwise direction as viewed from the top (the wind cup assembly end). Follow the instructions when the software is started, or locate the file "CreateList.exe" in the 1-Wire Weather directory and double click on it to create the file "ini.txt" at any time. Do not be concerned about orienting the weather station to North at this time. The software allows for proper orientation at any time by selecting "Options, Reference."

After testing and initializing the 1-Wire Weather Station with the short test cable included in the kit, it is suggested that it also be tested with the length of cable that will be

used to mount the unit prior to sealing and installation to avoid unnecessary trips up and down a ladder, etc. When everything is working properly, weather proof the component side of the PCB, being careful while handling the PCB as the reed switches are made from glass and easily cracked or broken. Paint or spray a coating of shellac, clear Krylon™, or other suitable weather proofing, taking care to protect the inside connections of the RJ-11 connectors.

Mounting the 1-Wire Weather Station

Locate the 1" square aluminum tube and drill a 5/32" hole clear through the tube, centered on the face and 1" from one end. Later, this end will be inserted into the mounting hole on the side of the weather station, the remaining 6-32 x 1½" screw passed through



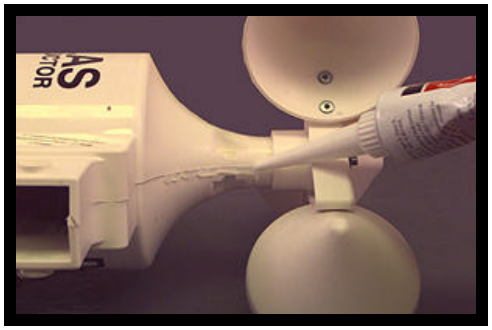
Aluminum tube assembly. Holes must be drilled in the aluminum tube for the mounting clamp and housing fastener. A Radio Shack type 15-826 or equivalent U clamp may be used. Note the placement of the end cap notches and cable

Obtain a "U" type mounting bracket (not supplied), such as part number 15-826 from Radio Shack, and mark hole positions for it on the same face of the 1" square aluminum tube as the 5/32" hole previously drilled, but at the opposite end. Drill the mounting holes specified for the "U" type mounting bracket chosen clear through the tube.

Locate the two white plastic end caps (supplied) and cut or file away enough material on one side of each (shown above) to pass the communication cable (not supplied). The cable should be long enough to reach from the computer to the weather station in its installed position. Category 5 twisted pair is recommended.

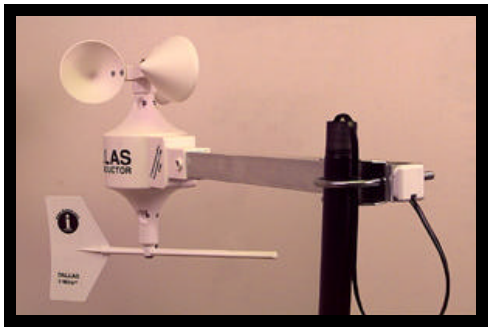
Pass the communication cable through the 1" square aluminum tube and plug it into either one of the two RJ-11 connectors located on the weather station PCB inside the housing. Press one of the white plastic end caps, with the cutaway portion up, into the end of the tube with the 5/32" hole. The communication cable, which must have a straight-through connection, not crossed like standard phone cable, should pass through the notch in the end cap. Insert the assembled 1" square aluminum tube into the mounting hole on the side of the weather station housing. Pass the remaining 6-32 x 1½" screw through the screw hole in the weather station and the tube, securing it with the remaining locking hexnut. Press the remaining white plastic end cap, with the notch down, toward the vane, into the mounting bracket end of the tube.

To ensure long life of the 1-Wire Weather Station, a sealant such as RTV or other silicone should be applied along the seams where the two halves of the housing come together. It is only necessary to apply sufficient sealant to waterproof the gap. Do not apply too liberally



Sealing the housing. A clear sealant such as GE's RTV-118 or equivalent should be applied to the seams of the weather station housing as shown. Take care not to affect the free movement of the wind cup assembly. An excess of sealant is shown here for illustration purposes, but only the minimum amount required to waterproof the seams is needed

The 1-Wire Weather Station is now ready for mounting in its operating position using a mast, etc. (not supplied). Mount the station with the 1" square aluminum tube level with the wind cup assembly on top and the wind vane at the bottom. It is recommended, but not required, that the 1" square aluminum tube be oriented so the weather station at its end points toward North. Hold or secure the wind vane pointing due North, select "Options, Reference" in the 1-Wire Weather Station software and press "Enter" to accept.



Mounting the weather station. View from the mast showing arrangement of the "U" type mounting bracket and end cap. Notice that the cable comes out of the bottom side of the tube and forms a "drip loop." *For purposes of clarity, the end cap is shown only partially inserted in the tube, but should be fully seated in the tube*

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CAUTION !!!!!!

- **DO NOT INSTALL THE WEATHER STATION WHERE IT COULD COME IN CONTACT WITH POWER LINES.**
- **AVOID LEAVING THE WEATHER STATION CONNECTED DURING AN ELECTRICAL STORM. THERE MAY BE A REMOTE RISK OF ELECTRIC SHOCK OR DAMAGE TO EQUIPMENT FROM LIGHTNING.**

This completes the assembly and installation of the 1-Wire Weather Station.