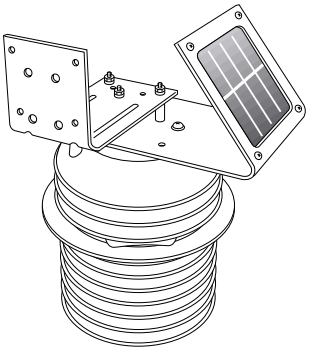


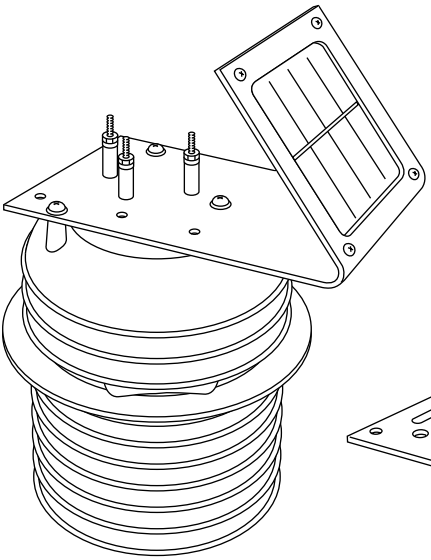
FAN-ASPIRATED WIRELESS TEMPERATURE/HUMIDITY STATION

INSTALLATION MANUAL

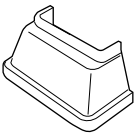
The Fan-Aspirated Wireless Temperature / Humidity Station, referred to in this manual as the Aspirated Temp / Hum Station, combines fan aspiration and passive shielding to minimize the effects of solar radiation, increasing the accuracy of temperature measurement. This instruction manual takes you step-by-step through the process of installing and mounting your station.

Components

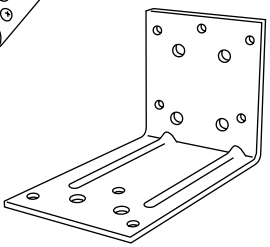
The Aspirated Temp / Hum Station includes these items shown below and on the next page:



Fan-Aspirated Radiation Shield



Junction Board Cover



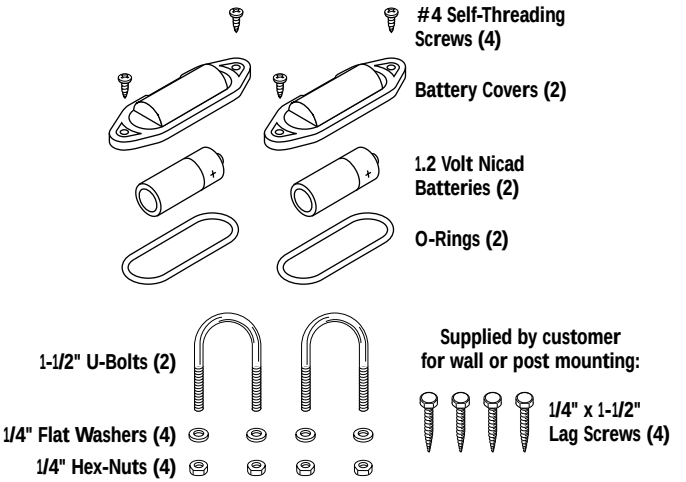
Mounting Bracket

#8 Hex Nuts (3)

#8 Lock Washers (3)

#8 Flat Washers (3)

Components, Part 1



Components, Part 2

Tools Needed

You may need the following tools to install your Aspirated Temp / Hum Station:

- **A medium Phillips-Head screwdriver.**
- **A small wrench or 3/8" (9 mm) nutdriver.**

Installation Steps

The Aspirated Temp / Hum Station comes pre-assembled. You will need to disassemble your station to prepare it for operation.

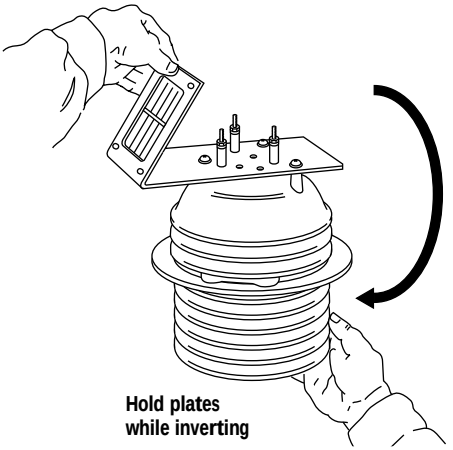
Here are the installation steps for your station:

1. Disassemble the station.
2. Install the Sensor Interface Module (SIM) batteries.
3. Configure the DavisTalk™ transmitter ID code.
4. Install the fan batteries.
5. Reassemble the station.
6. Choose a location for the station.
7. Mount the station.

Disassembling the Station

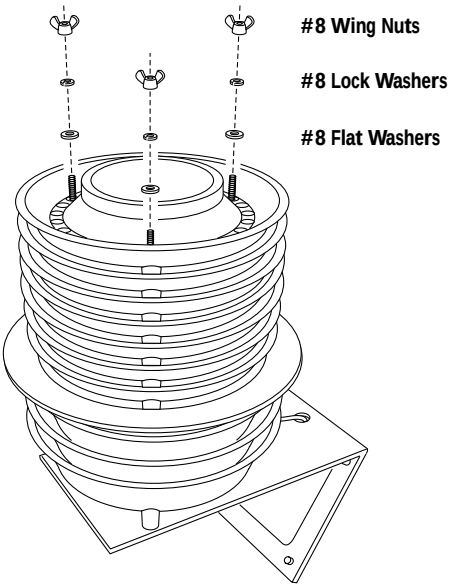
Open up the station by separating the top and bottom parts as shown in the following illustrations.

1. Turn the station upside down.



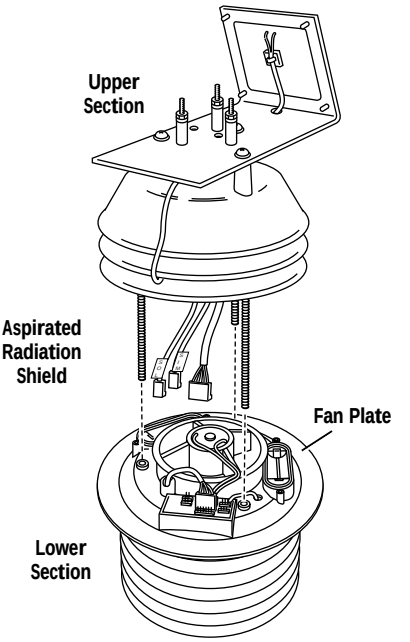
Inverting the Aspirated Temp/Hum Station

2. Remove the three wing nuts, lock washers and flat washers located on the underside of the station.
3. Turn the station right-side up with the mounting studs on top.



Removing the Wing Nuts

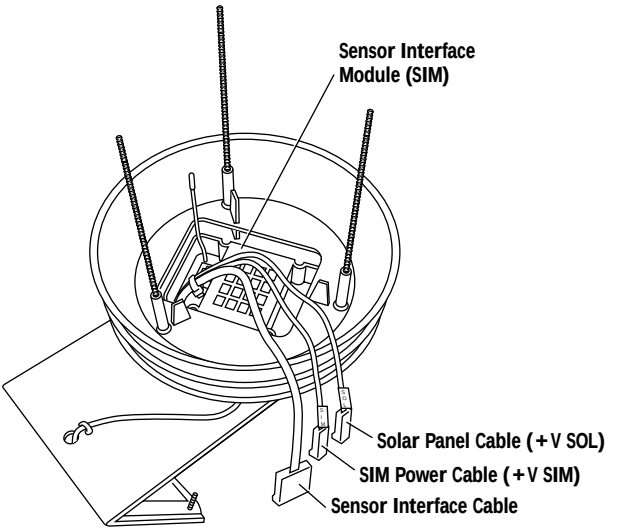
4. Lift off the upper section of the station to expose the fan plate in the lower section.



Separating the Radiation Shield

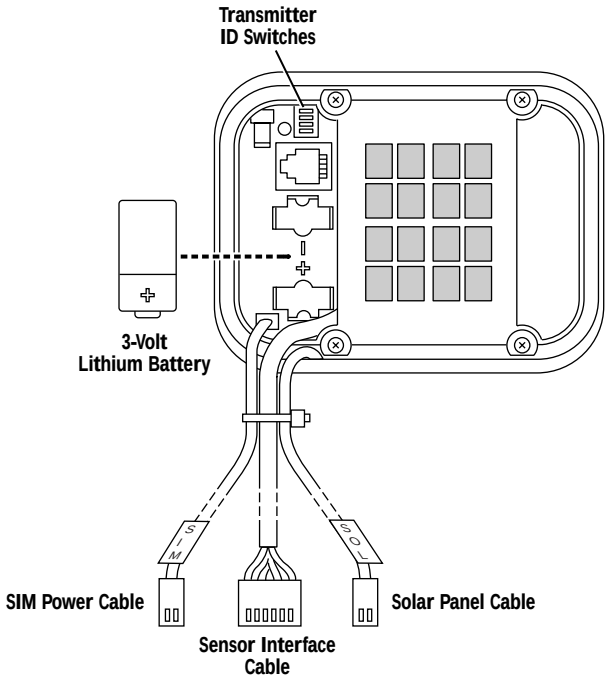
Installing the Sensor Interface Module (SIM) Battery:

1. Locate the SIM inside the upper section of the station.



Locating the Sensor Interface Module

2. Insert the 3-volt lithium battery into the battery holder, matching the "+" sign on the battery with the "+" sign on the SIM.
   Consult this drawing to locate the transmitter ID switches. You will work with them during the next installation step.



Sensor Interface Module on Temperature/Humidity Station

Setting the DavisTalk Transmitter ID

Each wireless transmitting station must be set to one of eight DavisTalk transmitter IDs. Use the transmitter ID switches #1, 2 and 3 to set the station's ID. Switch #4 is only used for transmission testing.

Note: *The transmitter and receiver communicate with each other only when* ***both*** *are set to the same ID.*

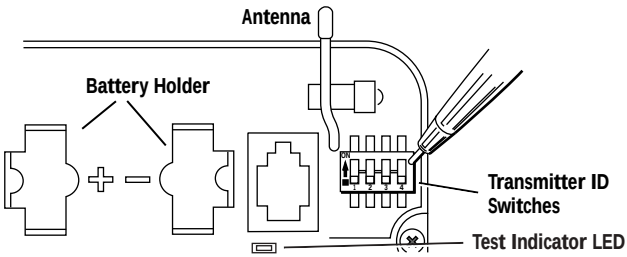
The factory default transmitter ID is "1". Looking at the table on the next page, you can see that means the transmitter ID switches are in the OFF position when each transmitting station leaves the factory.

Be sure to select a unique DavisTalk transmitter ID for your Aspirate Temp / Hum station.

Use a ballpoint pen or paper clip to toggle DIP switches #1, 2, and 3. The settings for transmitter IDs 1 – 8 are shown in the following table:

ID Code	Switch 1	Switch 2	Switch 3
#1 (default)	off	off	off
#2	off	off	ON
#3	off	ON	off
#4	off	ON	ON
#5	ON	off	off
#6	ON	off	ON
#7	ON	ON	off
#8	ON	ON	ON

Use this table to ensure that each wireless transmitting station in your system is broadcasting on a unique transmitter ID.



DIP Switches in Top-right Corner of SIM (Illustration has been enlarged for clarity)

Setting Console/Receiver(s) to Same ID

Note: *See the **Vantage Pro User's Manual & Setup Guide**: "Setup Mode – Screen 2: Selecting Transmitters" for more detailed instructions.*

1. Put your console into Setup Mode — press and hold the DONE key and press the DOWN arrow key.
   The console will display Screen 1: Transmitters. You should see the words: "RECEIVING FROM..." and "STATION NO." followed by the transmitter IDs that your console detects. One of these should be the ID number you just set on the station's transmitter. If you don't see it, move the console to within 10' of the transmitter and verify that the station's transmitter ID switches have been set correctly. If you still don't see station's ID, refer to the "TEST Mode" section on the next page.
2. Press the DONE key to move on to Screen 2: Selecting Transmitters.
   Setup Mode – Screen 2 is where you will set the console to recognize the signals from your Aspirated Temp / Hum Station.
3. Press the LEFT or RIGHT arrow key, or the STATION key, to scroll through transmitter IDs.
   When you see the transmitter ID you chose for your station, use the UP or DOWN arrow keys to set the reception of that ID code to "ON".

4. Press the GRAPH key to change the station assigned to that transmitter ID to “TEMP HUM”.
5. To exit Setup Mode, press and hold the DONE key.

Viewing Current Temperature and Humidity

Press the TEMP key until you see an ‘outside’ temperature displayed on the console screen, with the correct Station No. displayed above or below it. Do the same with the HUM key. It may take up to one minute for the sensor values to appear on your console. This confirms communication between your transmitting station and the console.

If You Do Not See Current Values from the Correct Station No.

First, verify that the console / receiver is powered and is not in Setup Mode (exit Setup Mode by pressing DONE key and holding it for a moment). Then, on the temperature / humidity station, check that the battery is properly installed. Walk around the room with the console, standing for a few moments in various locations to see if you are picking up signals.

If you don’t see readings no matter where you stand with the console, put your transmitter in TEST mode.

TEST Mode

Switch #4 on the SIM (see illustration on page 6) controls the station’s test mode. Set the switch to the ON position using a ball-point pen or paper clip. When in test mode, an LED indicator light flashes each time the station transmits:

- **The LED will immediately flash once to show that the light itself functions.**
- **Then it will flash each time the transmitter broadcasts a signal, which should be every 10 seconds.**

If the LED flashes only once and then remains dark, there is a problem with the transmitter. Refer to Troubleshooting on page 14.

If the LED flashes repeatedly but your console isn’t picking up a signal anywhere in the room, it could be related to one of the following causes:

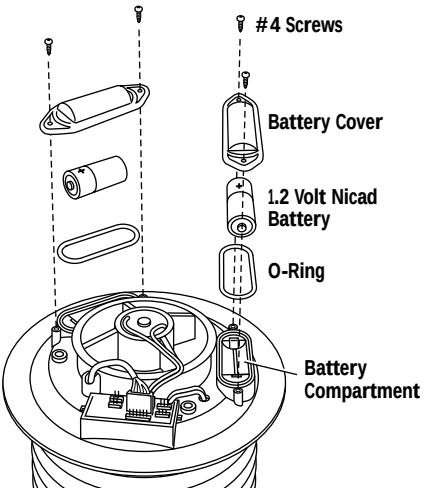
- **The ID switches were not correctly set on the transmitter.**
  Review the procedure on page 5.
- **The station ID was not correctly set on the console/receiver.**
  Review the procedure on page 6.
- **Reception is being disrupted by RF (radio frequency) interference.**
- **There is a problem with the console/receiver.**
  Refer to Troubleshooting, page 14.

Note: *Remember* to set the Test switch ***OFF*** *when you’re finished testing wireless transmission. If it is left ON, the blinking LED will significantly reduce battery life.*

Installing the Fan Batteries

The fan will begin operating as soon as you install the batteries. To prevent discharging the batteries, you should power the fan only on the day you will be mounting the station.

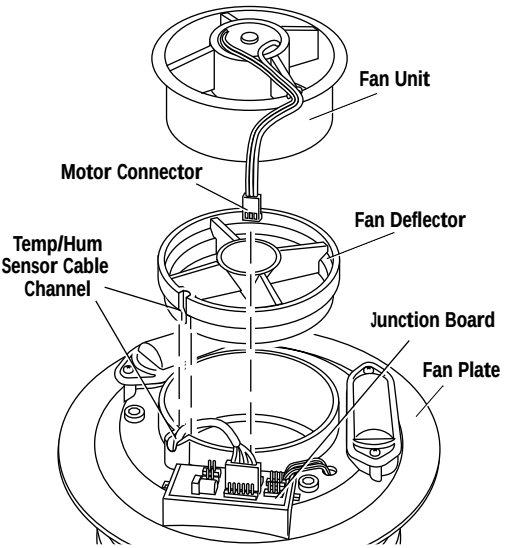
1. Insert the O-ring in the groove around the edge of each battery compartment located on the fan plate.
2. Insert a NiCad battery in each compartment, matching the plus (+) sign on the battery with the plus (+) sign in the battery compartment.
3. See that the fan blade turns and that air is blown upwards.
4. Attach the battery covers to the battery compartments using two #4 x 3/8" (9.5 mm) screws each.



Installing the Batteries

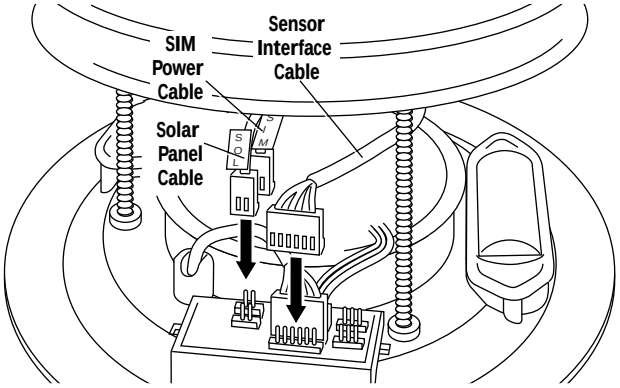
Reassembling the Radiation Shield

1. Make sure the Temp/Hum sensor cable runs through the provided cable channel and that the fan unit is seated on the fan plate.
2. Line up the threaded rods on the upper section of the station with the mounting holes in the lower section.
3. Slide the two sections partially together, leaving enough clearance so that you have access to the Junction Board.



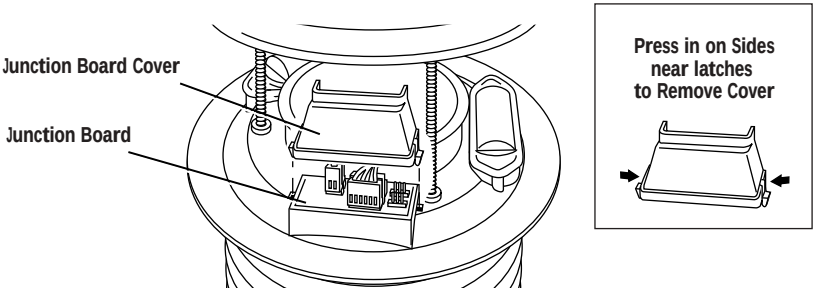
Routing the Sensor Cable

4. Check the Junction Board cable connections: SIM Sensor, SIM Power (SIM), Motor, Temp / Hum Sensor, and Solar Panel (SOL).



Junction Board Cable Connections

5. Install the Junction Board Cover as show below. The Junction Board Cover presses easily into place when you are installing it. To remove the cover, press gently in on both sides to release the latches holding it in place.



Junction Board Cover Installation

6. Slide the two sections of the Radiation Shield completely together.
7. Place the flat washers, lock washers and plastic wing nuts over the threaded rods.
8. Finger-tighten the wing nuts until they hold the radiation shield plates firmly in place.

Choosing a Location for the Station

Consider the following factors as you choose a location for your Aspirated Temp / Hum Station:

- **Mount the station facing South in the Northern Hemisphere and Facing North in the Southern Hemisphere.**
- **Mount the station so that the solar panel receives the most available direct sunlight throughout the day.**
- **Do not mount the station near any source of cold or heat that might distort temperature measurements.**
- **Mount the station over plants or soil if possible.**
- **Do not install over or near sprinklers. The radiation shield is not designed to protect sensors from water that is sprayed upwards.**

Testing Transmission from Proposed Location

It is **very important** to test reception from the proposed location **before** permanently mounting the station.

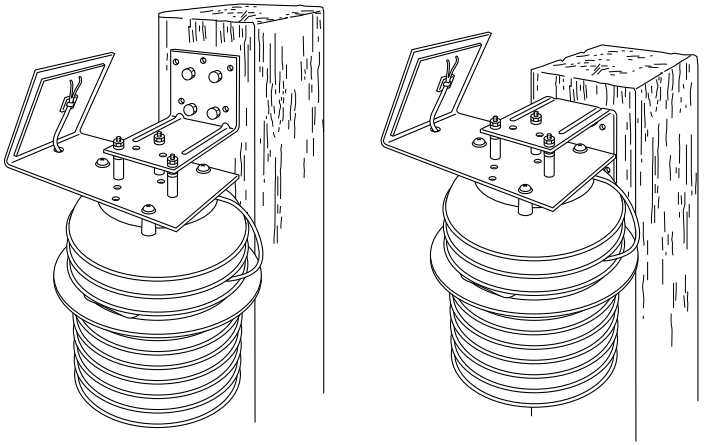
- **Place the station at the intended mounting site, or have someone hold it there, so you can test reception at your Vantage Pro console or other DavisTalk receiver for a few minutes.**

Note: *Rotating the Vantage Pro console's antenna may help to improve reception.*

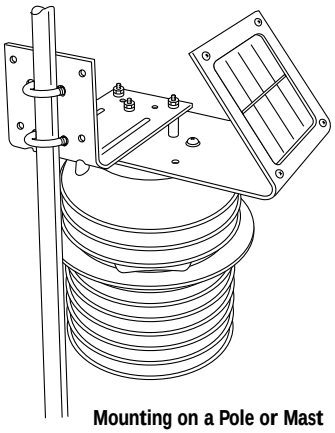
- **Take your time and be sure to test wireless reception anywhere you might want to use or mount your console or other receiver now or in the future.**
- **If you aren't picking up strong signals where you intend to place your console, better to move the station now than after it has been mounted. Experiment to find the best reception.**

Mounting the Station

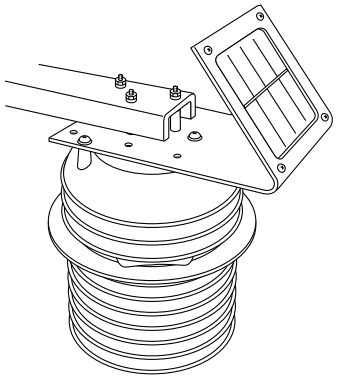
The Aspirated Temp / Hum Station can be mounted on a pole or on a vertical surface such as a wooden post, wall or fence.



Mounting on the Side of a Post or Wall



Mounting on a Pole or Mast

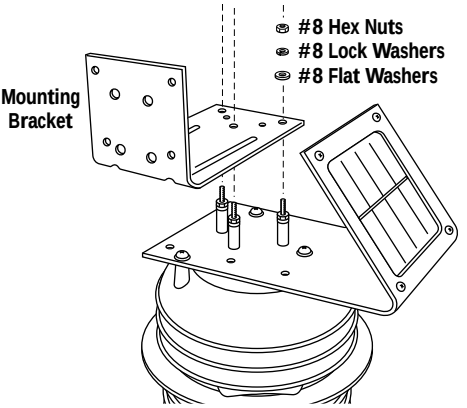


Mounting on the Sensor Arm

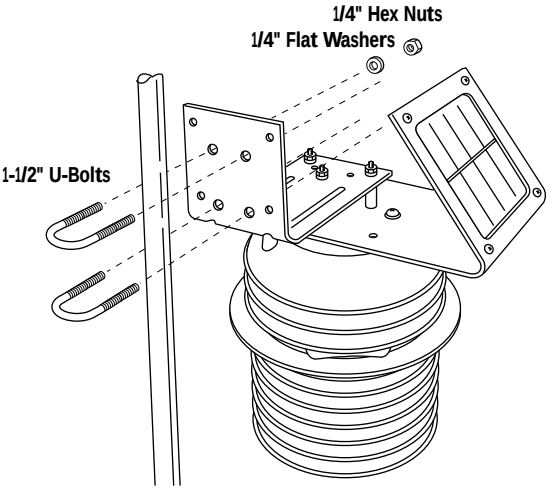
Mounting on a Pole or Mast

Use a pole having an outside diameter between 1" and 1-1/4" (25 – 31 mm).

1. Slide the stud ends protruding from the top of the station through the holes on the mounting bracket.
2. Secure the station to the mounting bracket using a #8 flat washer, #8 split lock washer and #8 hex nut one each of the stud ends. Tighten the hex nuts until the station is secure on the mounting bracket.
3. Hold the mounting bracket against the pole. Put two U-bolts around the pole and insert the ends through the holes in the back of the mounting bracket.
4. Secure the mounting bracket using 1/4" flat washers and 1/4" hex nuts. Tighten four set of the washers and hex nuts until the mounting bracket is firmly mounted on the pole.



Attaching Temperature/Humidity Station to Mounting Bracket

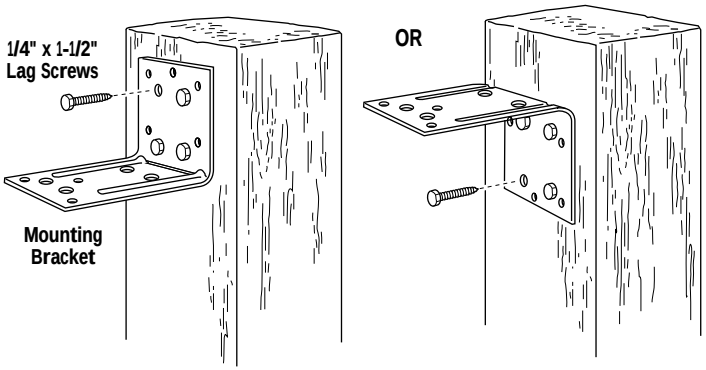


Mounting on a Pole

Mounting on a Post or Wall

1. Using four 1/4" x 1-1/2" lag screws (not included), attach the mounting bracket to the surface in the desired location. A mounting template is located on page 15.

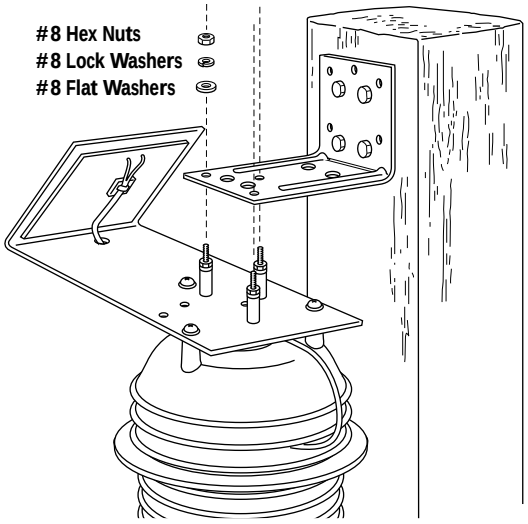
   Drill holes using a 3/16" (5 mm) drill bit. Use a carpenter's level when marking the holes, to ensure that the bracket will be level.



Attaching Mounting Bracket to a Post

2. Slide the stud ends protruding from the top of the station through the holes on the mounting bracket.
3. Secure the station to the mounting bracket using a #8 flat washer, #8 split lock washer and #8 hex nut on each of the stud ends.

   Tighten the hex nuts until the station is secure on the mounting bracket.



Mounting to a Post

Maintenance Instructions

- Keep the surfaces clean. The station is less effective when the surfaces are dirty. Remove dust from the solar panel and the screen with a damp cloth.
- Remove any debris that obstructs air flow between the radiation shield parts e.g., leaves, twigs, webs, and nests.
- Avoid spraying insecticide of any kind into the radiation shield as this may damage the sensors and the shield.
- Once a year: replace the motor (Part # 7758 (standard motor) or # 7759 (low-current motor)), replace the batteries, and remove any debris lodged inside the unit.

Replacing Fan Batteries

1. Retrieve your station and place on a stable work surface.
2. Disassemble the station (See page 3).
3. Replace the old batteries (See page 8).
4. Re-assemble the station (See page 8).
5. Mount the Aspirated Temp / Hum Station in its location.

Troubleshooting

If you are experiencing problems with your Aspirated Temp / Hum Station, first be sure to check all cable connections. If you are unable to solve the problem, please call Davis Technical Support. We'll be glad to help. Most questions can be answered while you're on the phone. You can also email us for support, or visit our website. Sorry, we are unable to accept collect calls.

Note: *Please do not return items to the factory for repair without prior authorization.*

Contacting Davis Technical Support

(510) 732-7814 for Technical Support, Monday – Friday, 7:00 a.m. – 5:30 p.m. Pacific Time.

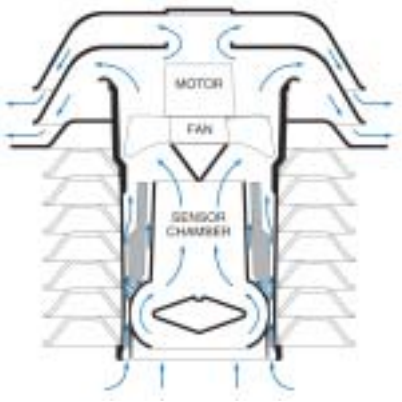
(510) 670-0589 Fax to Technical Support or Customer Service.

support@davisnet.com E-mail to Technical Support.

www.davisnet.com Copies of User Manuals are available on the "Support" page. Watch for FAQs and other updates. Subscribe to the e-newsletter.

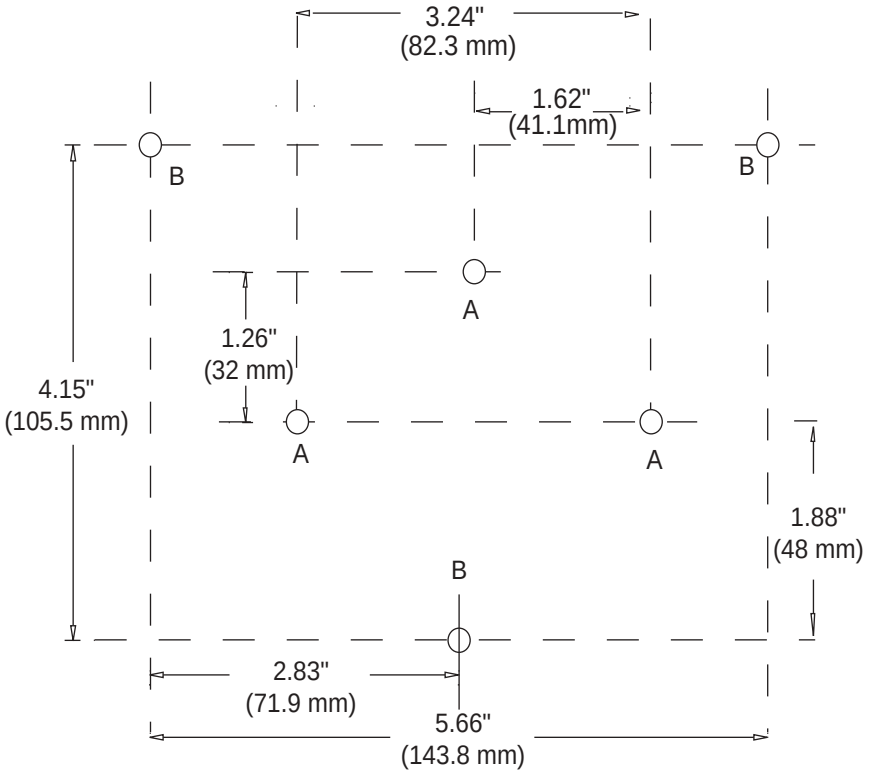
Diagram of Operation

The diagram below shows how the Fan-Aspirated Radiation Shield draws cool outside air up through the sensor chamber and through the walls surrounding the sensor chamber.



Air Flow in the Fan-Aspirated Radiation Shield

Template for Mounting Holes



[Either set of 3 holes (A or B) may be used]

Specifications

Aspiration Rate	190 ft./min (.96 m/s) (solar-powered, typical)
Radiation-Induced Temperature Error	0.5°F (0.3°C) [At solar noon, insolation = 1040 W/m2] (Reference: RM Young model 43408)
Operating Temperature	–40° to +140° F (–40° to +60° C)
Non-operating Temperature	–50° to +158° F (–45° to +70° C)
Station Primary Power Input	CR-123A 3-volt lithium battery (approximately one year battery life)
Fan Primary Power Input	solar panel
Fan secondary power	1 or 2 - 1.2 Volt NiCad C-cells

FCC Part 15 Class B Registration Warning

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved in writing by Davis Instruments may void the user's authority to operate this equipment.

Product Number: 6385

Davis Instruments Part Number: 7395.153
Fan-Aspirated Wireless Temperature/Humidity Station
Rev. A Manual (8/30/01)

This product is protected in the United States by Patent Number 6,247,360.
FCC ID: IR2DWW6326

Davis Instruments

3465 Diablo Avenue, Hayward, CA 94545-2778

510-732-9229 • Fax: 510-732-9188

E-mail: info@davisnet.com • www.davisnet.com