

STANDARD AND INDUSTRIAL ANEMOMETER

The anemometer enables you to measure and display wind-related conditions such as wind speed, wind direction, wind run, wind chill, and temperature-humidity-sun-wind index.

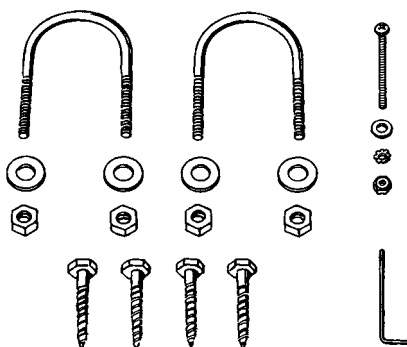
Note: *DO NOT attempt to lubricate the wind cup shaft and bearings or the wind vane shaft. Natural or synthetic lubricants affect the normal operation of the anemometer.*

COMPONENTS

The Anemometer includes the following components. Please make sure you have all listed components before continuing. The installation hardware kit contains the items most commonly needed for the installation of the anemometer. Which items you use from the kit depends on where you install your unit. You may need to adapt or purchase additional hardware to fit your individual requirements. Assess your installation and make sure you have all necessary parts, tools, and materials before you begin.

- ◆ Anemometer Arm with cable (The standard anemometer comes with the straight arm pictured above. The industrial anemometer comes with a curved arm.)
- ◆ Anemometer Base
- ◆ Wind Cups
- ◆ Wind Vane

- ◆ Installation Hardware Kit
 - ◆ Two U-Bolts
 - ◆ Four 1/2" Flat Washer
 - ◆ Four 1/2" Hex Nut
 - ◆ Four 1/2" x 1 1/2" Lag Screws
 - ◆ One #4-40 x 1 1/2" Pan Head Screw
 - ◆ One #4 Flat Washer
 - ◆ One #9 Lock Washer
 - ◆ One #4-40 Hex Nut
 - ◆ Allen Wrench



TOOL AND MATERIALS NEEDED

You will need some of the following tools and materials.

- ◆ Cable Clips or Weather-Resistant Cable Ties
For securing the anemometer cable. Make sure the clips or ties have screw holes or other means for mounting.
- ◆ Stainless Steel Hose Clamps
- ◆ Small Screwdrivers
- ◆ Adjustable Wrench
- ◆ Hand-Held Compass or Local Area Map

TESTING THE ANEMOMETER

Before beginning your installation, test the anemometer by connecting the anemometer cable to the appropriate connector on your sensor interface module (SIM) or junction box. Once you finish testing the anemometer, disconnect the cables in order to install the anemometer.

Testing Wind Speed

Press WIND (on the console) as necessary to display wind speed. Push the wind cups onto the smaller of the two stainless steel shafts at the end of the arm. Spin the wind cups *GENTLY* (you haven't secured them yet, if you spin them too hard you may knock them off) and check the display to make sure you are getting a wind speed reading.

Testing Wind Direction

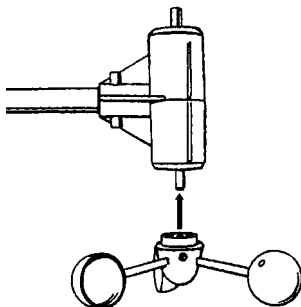
Press WIND (on the console) as necessary to display wind direction. Twist the larger of the two stainless steel shafts at the end of the arm with your fingers. Make sure the wind direction reading on your display changes. Note that the wind direction readings will not change as rapidly as you turn the shaft. The station uses a low pass filter to smooth out the constant small shifts in wind direction and keep the direction display from jumping about in gusty winds.

ATTACHING THE WIND CUPS

Before installing the anemometer, attach the wind cups. Wait until you have installed the anemometer before you attach the wind vane.

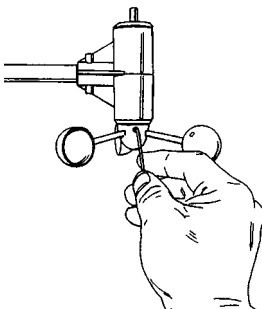
1. Push the wind cups onto the smaller of the two stainless steel shafts at the end of the arm.

Slide the wind cups as far up the shaft as possible. Note that when you let go of the wind cups, they should drop slightly.



PLACING CUPS ONTO SHAFT

2. Use the allen wrench provided to tighten the set screw on the side of the wind cups.



SECURING WIND CUPS

3. Spin the wind cups. If they do not spin freely, loosen the set screw and lower the cups slightly. Repeat until the wind cups spin freely.

INSTALLING THE ANEMOMETER BASE

The first step in the anemometer installation is to attach the anemometer base to the desired mounting surface. Before you do so, however, insert the anemometer arm into the base and attempt to push the #4-40 x 1π" pan head screw through the holes in the arm and the base as described in "Attaching the Wind Vane" on page 6. The screw should slide easily through the holes. If it does not, rotate the base 180° (to line up the opposite holes) and try again. You will need to know which way to orient the base before installing it.

Choosing a Location

Make sure you install the anemometer in a location where wind flow is unobstructed by trees and nearby buildings. For the most accurate readings, the anemometer should be mounted at least 4 feet (1.2 m) above the roof line. You may do this by mounting the anemometer on a television antenna mast or on a raised piece of wood or metal pipe.

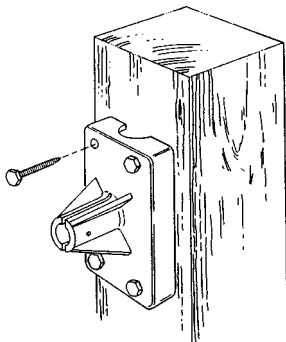
Make sure the antenna mast or metal pipe is properly grounded. (You may use Davis' Grounding Kit.) If you are not certain about how to ground your installation, consult a qualified professional for national and local codes. In addition, if you live in an area which encounters frequent thunderstorms, installing a lightning rod nearby can reduce the risk of damage.

Installing on the Sensor Mounting Arm

Consult the Sensor Mounting Arm manual for instructions. You will need to return to this instruction manual after installing onto the Sensor Mounting Arm for instructions on attaching the wind vane (see "Attaching the Wind Vane" on page 6).

Installing on a Wooden Post or Surface

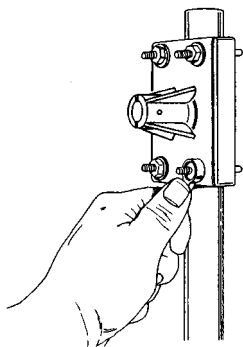
1. Hold the anemometer base against the wood surface and use a pencil to mark the location of the four holes on the base.
2. Use an drill with a 3/16" (4.8-mm) drill bit to make pilot holes in these locations.
3. Drive the lag screws through the holes in the anemometer base and into the wood.



ATTACHING BASE TO WOODEN POST

Installing on Antenna Mast or Metal Pipe: Outside Diameter 7/8" to 1π" (22 to 32 mm)

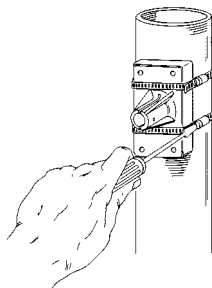
1. Hold the anemometer base against the pipe and insert the two U-bolts through the back of the base so that the U-bolts wrap around the pipe.
2. Place a π" washer and a π-20 hex nut over each end of the U-bolts and use a wrench to tighten the hex nuts.



ATTACHING BASE TO A PIPE USING U-BOLTS

Installing on Metal Mast or Pipe: Outside Diameter Greater than 1π inch (32 mm)

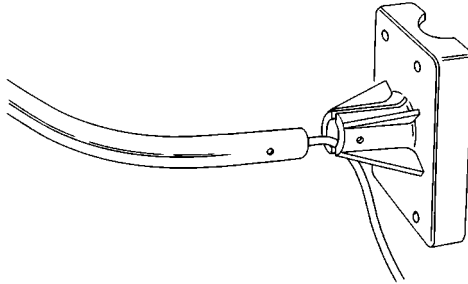
1. Obtain two stainless steel hose clamps large enough to fit around the mast or pipe and the anemometer base.
You may purchase hose clamps at your local hardware store.
2. Hold the anemometer base against the pipe and fasten the hose clamps over the anemometer base and around the metal mast or pipe.



ATTACHING BASE TO A PIPE USING HOSE CLAMPS

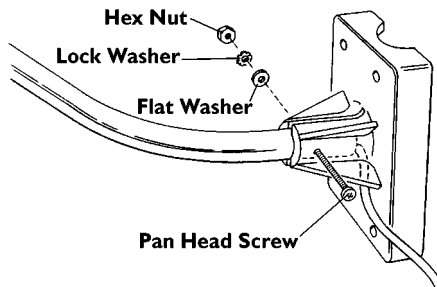
ATTACHING THE ANEMOMETER ARM TO THE BASE

1. Insert the anemometer arm into the anemometer base.
Guide the anemometer cable through the slot as you insert the arm.



INSERTING ARM INTO BASE

2. Insert the pan head screw into one of the holes in the base and slide it through the arm.
3. Secure the pan head screw using the flat washer, lock washer, and hex nut as shown below.



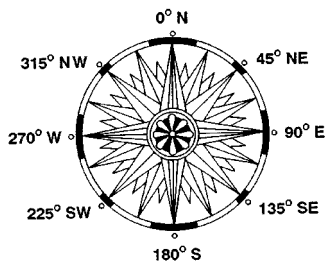
ATTACHING THE ANEMOMETER ARM TO THE BASE

ATTACHING THE WIND VANE

To mount the wind vane, you will need to look at the console display. You may wish to have a friend or family member on the ground do this for you. Or you may wish to bring the console and SIM/junction box onto the roof with you.

1. Reconnect the anemometer cable to the SIM/junction box.
2. Press WIND as necessary (on the console) to display wind direction.
3. Use the compass or map to determine in which direction (N, S, E, W,) the anemometer arm is pointing.

-
4. Use the wind direction chart to find the degree reading which corresponds to that direction.



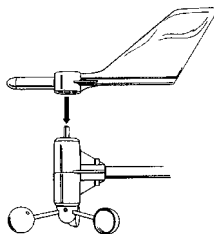
WIND DIRECTION CHART

5. Slowly turn the wind direction shaft with your fingers. Stop turning when the display reaches the degree reading obtained in step 4.

Because of the low pass filter used by the station (see “Testing Wind Direction” on page 3), you need to allow the wind direction reading approximately 20 seconds to stabilize after you turn the shaft. You will, therefore need to turn the shaft, wait, and turn it again until you eventually “zero in” on the desired wind direction reading.

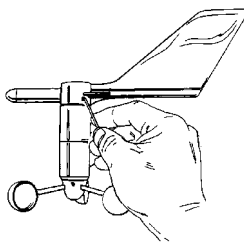
6. Being careful to keep the stainless steel shaft from turning, place the wind vane on the shaft with the bullet-shaped nose of the vane pointing in the same direction as the arm.

Slide the wind vane down the shaft as far as it will go.



PLACING VANE ONTO SHAFT

7. Use the allen wrench provided to tighten the set screw on the side of the wind vane.



SECURING WIND VANE

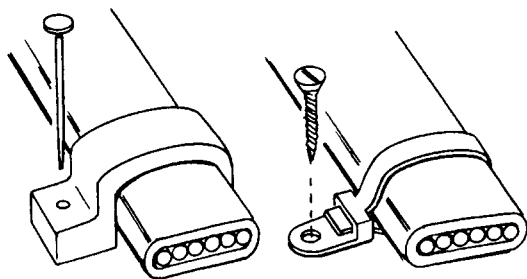
-
8. Test your assembly by pointing the wind vane in any direction and (using the compass or map as a guide) making sure the console displays the correct wind direction. Re-adjust the vane if necessary.

Because of the low pass filter used by the station (see “Testing Wind Direction” on page 3), you need to allow the wind direction reading approximately 20 seconds to stabilize after you turn the vane.

9. Spin the wind cups to make sure you get a wind speed reading. Readjust the cups if necessary.
10. Secure the cable to the metal mast or pipe with electrical tape. Secure the rest of the cable according to the directions below.

SECURING THE CABLE

To prevent fraying or cutting of the anemometer cable where it is exposed to weather, it is very important that you secure it so it doesn't whip about in the wind. Use cable clips or weather resistant cable ties to secure the cable. Place clips or ties approximately every 3 to 5 feet (1 to 1.6 m).



SECURING CABLE (STANDARD CABLE SHOWN)

Note: Do not use metal staples or a staple gun to secure cables. Metal staples—especially when installed with a staple gun—have a tendency to cut the cables.

Product Numbers: 7911 & 7914

Davis Instruments Part Number: 7395-032

Anemometer, Standard & Industrial

Rev. A Manual (7/7/99)

This product complies with the essential protection requirements of the EC EMC Directive 89/336/EC.

© Davis Instruments Corp. 1996. All rights reserved.

DAVIS 
Davis Instruments

3465 Diablo Avenue, Hayward, CA 94545 U.S.A.