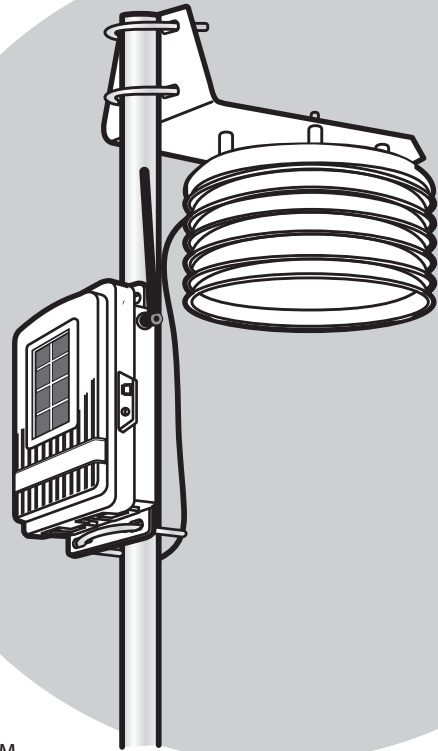# USER MANUAL

Temperature Humidity Station

For Vantage Pro2™, Vantage Pro2 Plus™, Vantage Connect®, Weather Envoy™ and Weather Envoy8X™

Product number 6382

DavIS℮ ®

Wireless Temperature/Humidity Station

For Vantage Pro2™ and Vantage Pro2 Plus™

The Wireless Temperature/Humidity Station, referred to as the Temperature/Humidity Station in this manual, is for use with Wireless Vantage Pro2 weather stations including Vantage Connect.

Components

The Temperature/Humidity Station consists of temperature and humidity sensors located in a radiation shield, a transmitter board located in a separate protective housing with a solar panel.
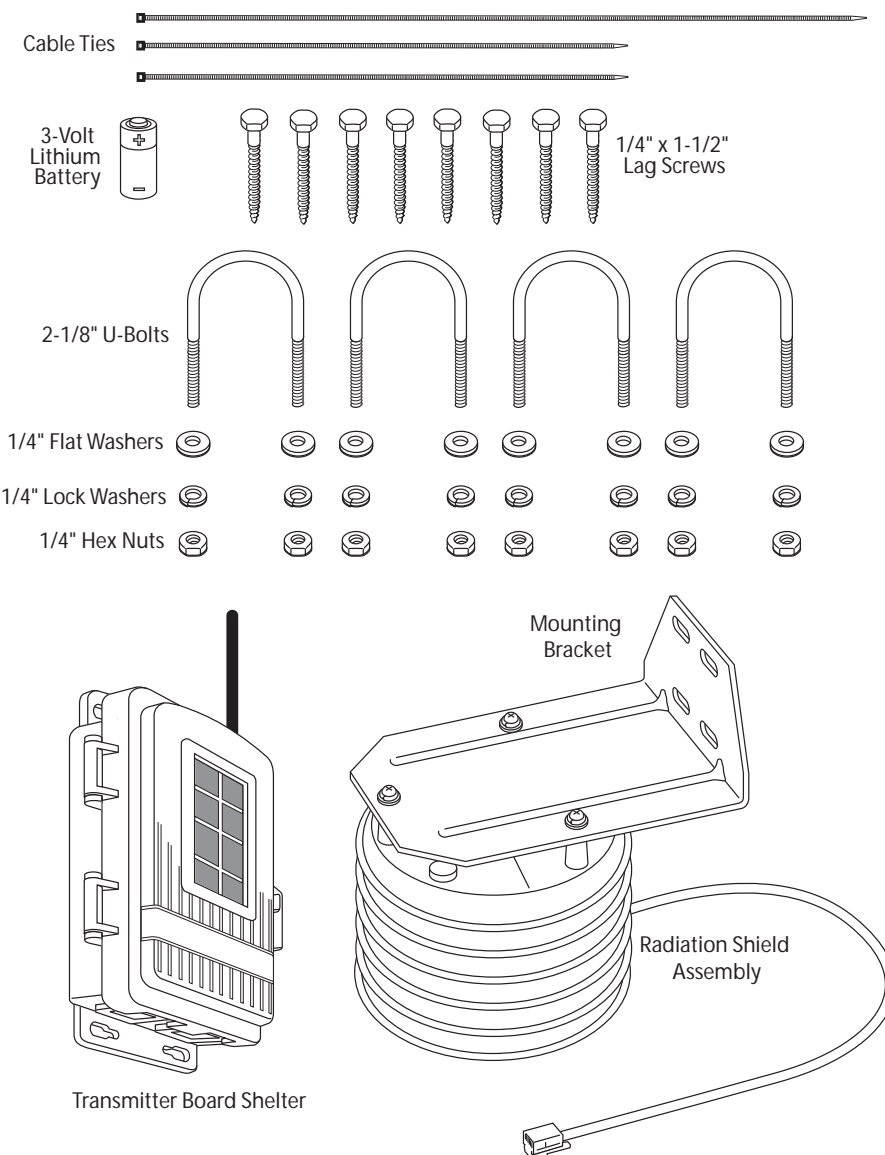
Tools for Setup

In addition to the hardware provided, you will need some or all of the following materials:

- Small Phillips head screwdriver
- Adjustable wrench or 7/16" wrench
- Ballpoint pen or paper clip (or some other small pointed object)
- Drill and 3/16" (5 mm) drill bit (if mounting on a flat, vertical surface)

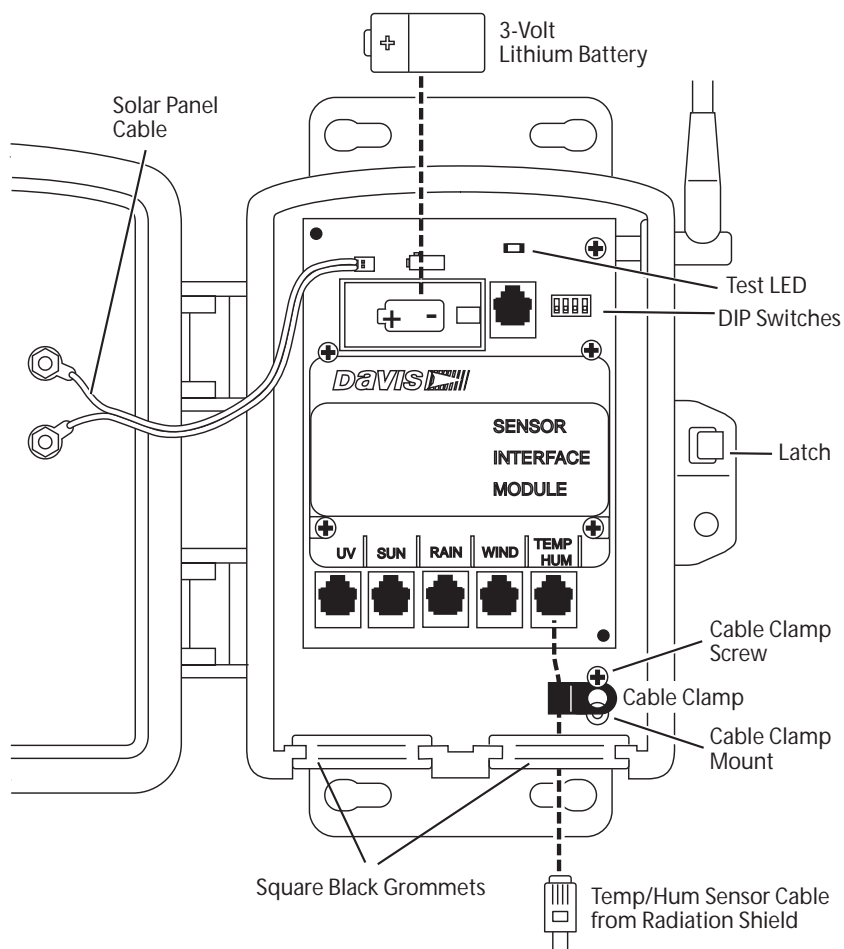# Prepare the Temperature/Humidity Station

Rotate the Mounting Bracket.

To facilitate packing and shipping the Temperature/Humidity Station, the mounting bracket is installed upside down at the factory. For best air flow through the shield as well as ease of installation, we suggest you flip it over.

1. Place the Temperature/Humidity Station on a table or other level work surface.

2. Loosen the three 5/8" mounting screws and lock washers that hold the mounting bracket and the radiation shield together as shown in the illustration.

3. Remove the mounting bracket, flip it over and replace it on the radiation shield.

Remove Mounting Screws and Lock Washers

Remove and Flip Mounting Bracket

Radiation Shield Assembly

4. Fasten the mounting bracket in place using the three screws and lock washers.
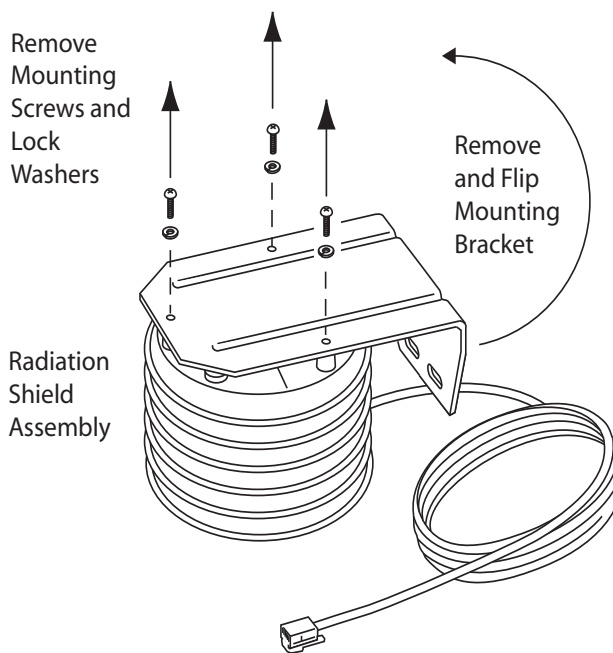
Apply Power

1. Open the shelter by pushing the latch away from the shelter body while pulling up on the tab.

3-Volt Lithium Battery

Solar Panel Cable

Test LED

DIP Switches

SENSOR INTERFACE MODULE

Latch

UV SUN RAIN WIND TEMP HUM

Cable Clamp Screw

Cable Clamp

Cable Clamp Mount

Square Black Grommets

Temp/Hum Sensor Cable from Radiation Shield

Transmitter shelter open. Note locations of battery, DIP switches and cable clamp

2. Thread the sensor cable up through the black rubber grommet on the bottom right side of the shelter. Then thread the cable through the cable clamp by removing the screw connecting it to the shelter, threading the cable through the round part of the clamp, and then driving the screw back through the holes in the clamp and into the cable clamp mount.

3. Plug the Temperature/Humidity sensor cable into the jack labeled TEMP/HUM.

4. Insert the 3-volt lithium battery into the battery holder, matching the "+" sign on the battery with the "+" sign on the battery holder.

5. Use the illustration to locate the DIP switches. You will work with them when you set the transmitter ID.

Set the Transmitter ID

Your Temperature/Humidity Station must be set to one of eight transmitter IDs. The transmitter and receiver communicate with each other only when both are set to the same ID. You will use the DIP switches #1, 2 and 3, located near the battery holder to set the transmitter ID.

Note: DIP switch #4 is used to set the station to TEST Mode for transmission testing and does not affect the ID.


The factory default transmitter ID setting is #1, and so all three DIP switches are in the OFF position.

Since an Integrated Sensor Suite (ISS) is included with every Wireless Vantage Pro2, the console is set at the factory to find the ISS on "1". **You should set your Temperature/Humidity Station to a different transmitter ID number.**

The DIP switch settings for transmitter IDs 1 – 8 are shown in the following table. Use the table to ensure that each wireless transmitting station in your system is broadcasting on its own transmitter ID.

ID #	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

1. Use a Ballpoint pen or paper clip to set the DIP switches to the right configuration for the Transmitter ID you have chosen.

(Illustration enlarged for clarity.)
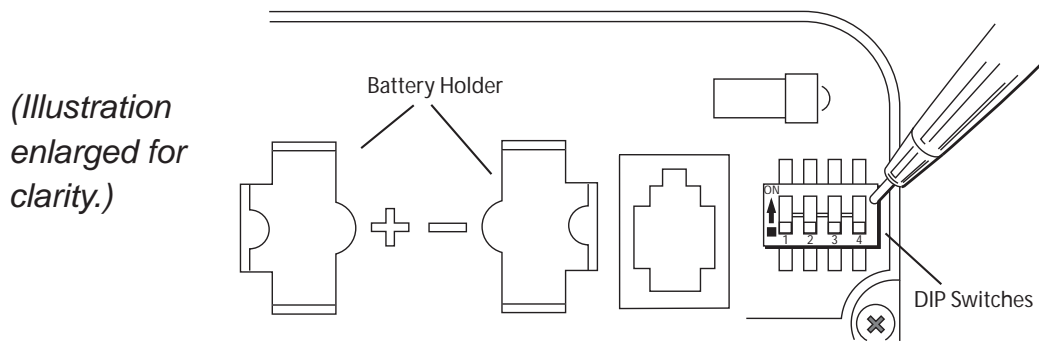
2. Close the shelter cover.

Set Console Station ID on the Console

1. Put your console into Setup Mode. (Press and hold DONE and press the "down" button "-".)
   The console will show you Screen 1: Transmitters. You should see the words: "RECEIVING FROM..." and "STATION NO." followed by the transmitter IDs that your console detects. (It may take a few minutes for station ID numbers to appear.) One of these should be the ID number you just set on the Temperature/Humidity Station transmitter. If you don't see it, make sure the console is within 10' of the transmitter, and verify that you set the DIP switches correctly. If you still don't see it, set your Temperature/Humidity Station into TEST Mode. (See "TEST Mode" on page 5.)

2. Press DONE to move on to Screen 2: Selecting Transmitters.
   Setup Mode – Screen 2 is where you will set the console to recognize signals on that ID as coming from a Temperature/Humidity Station.

3. Press the LEFT (<) or RIGHT (>) arrows to scroll through transmitter IDs. When you see the ID you chose for the Temperature/Humidity Station, use the UP or DOWN arrow keys to activate reception of that ID number. Make sure the screen shows "ON".

4. Press GRAPH to change the type of station assigned to that transmitter ID.
   Press GRAPH until "TEMP HUM" appears.

5. To exit Setup Mode, press and hold DONE.

Note: You can also set the console ID for your Temperature/Humidity Station from WeatherLink or WeatherLinkIP; set the station type to TEMP/HUM.

To View Current Temperature and Humidity

With the console set to receive from the Temperature/Humidity station (see above), the temperature and humidity readings will display in the inside temperature and humidity field, and with the label "TEMP" or "HUM" followed by the station's ID number.

Press the TEMP or HUM buttons repeatedly until you see the readings displayed on the console screen with the correct Station No. displayed above or below it. This confirms communication between your Temperature/Humidity Station and the console. If you are not receiving the sensor readings on the console go the next section, "Troubleshooting: No Communication with Temperature/Humidity Station."

It may take a couple of minutes to acquire data.

Troubleshooting: No Communication with Temperature/Humidity Station

1. First, verify that the console is powered and is not in Setup Mode. Exit Setup Mode by pressing and holding DONE.

2. On the Temperature/Humidity Station, check that the battery is properly installed.

3. Walk around the room with the console, standing for a few moments in various locations to see if you are picking up signals. It may take up to three minutes to acquire a signal, see your *Vantage Pro2 Console User Guide* for details on transmission.

4. If you don't see readings no matter where you stand with the console, put the transmitter on your Temperature/Humidity Station in TEST mode.

TEST Mode

DIP switch #4 is the TEST DIP-switch. Switch it to the ON position using a ball-point pen or paper clip. This puts the transmitter in *Test Mode*. An LED indicator light will flash each time the station transmits:

• The LED will flash each time the transmitter broadcasts a signal, which should be every 2.5 seconds.

If the LED does not flash, there may be a problem with the transmitter. Contact Tech Support (See "Contacting Davis Instruments" on page 9.)

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:

1. The DIP switches were not correctly set on the Temperature/Humidity Station.
   See "Set the Transmitter ID" on page 3.

2. The ID was not correctly set on the console.
   See "Close the shelter cover." on page 4.

3. Reception is being disrupted by RF (radio frequency) interference.

4. There is a problem with the console or Temperature/Humidity Station.
   See "Contacting Davis Instruments" on page 9.

Note: Remember to **set the 4th Test DIP switch OFF** when you're finished testing wireless transmission. If it is left ON, the blinking LED will reduce battery life significantly.

Before You Install the Temperature/Humidity Station

Choose a Location

Consider the following factors as you choose a location:

- Do not mount the station near any source of cold or heat that might distort temperature measurements.
- Mount the shelter so that the solar panel faces south in the Northern Hemisphere, or north in the Southern Hemisphere.
- The station's radiation shield works best in a location with a steady breeze. Mount it away from fences, buildings, trees, or other obstructions.
- Mount the station over vegetation or soil if possible.
- Do not install over or near sprinklers, which may inflate humidity values.

Test Transmission from Proposed Location

It is very important to test reception from the proposed location before permanently mounting the Temperature/Humidity Station.

- Place the Temperature/Humidity Station at the intended mounting site, or have someone hold it there, so you can walk around with the console for a few minutes.

Note: Moving the antenna on the station and on the console may help improve reception. Generally, for best reception the two antennas should be oriented parallel to each other.

- Test wireless reception anywhere you might want to use or mount your console now or in the future. Take your time.
- If you aren't picking up strong signals where you intend to place your console, choose another location.

Mount the Temperature/Humidity Station

The Temperature/Humidity Station can be mounted on a pole or on a vertical surface such as a wooden post or wall. Remember that enough space must be available to mount both the radiation shield and the transmitter shelter in the same general location.
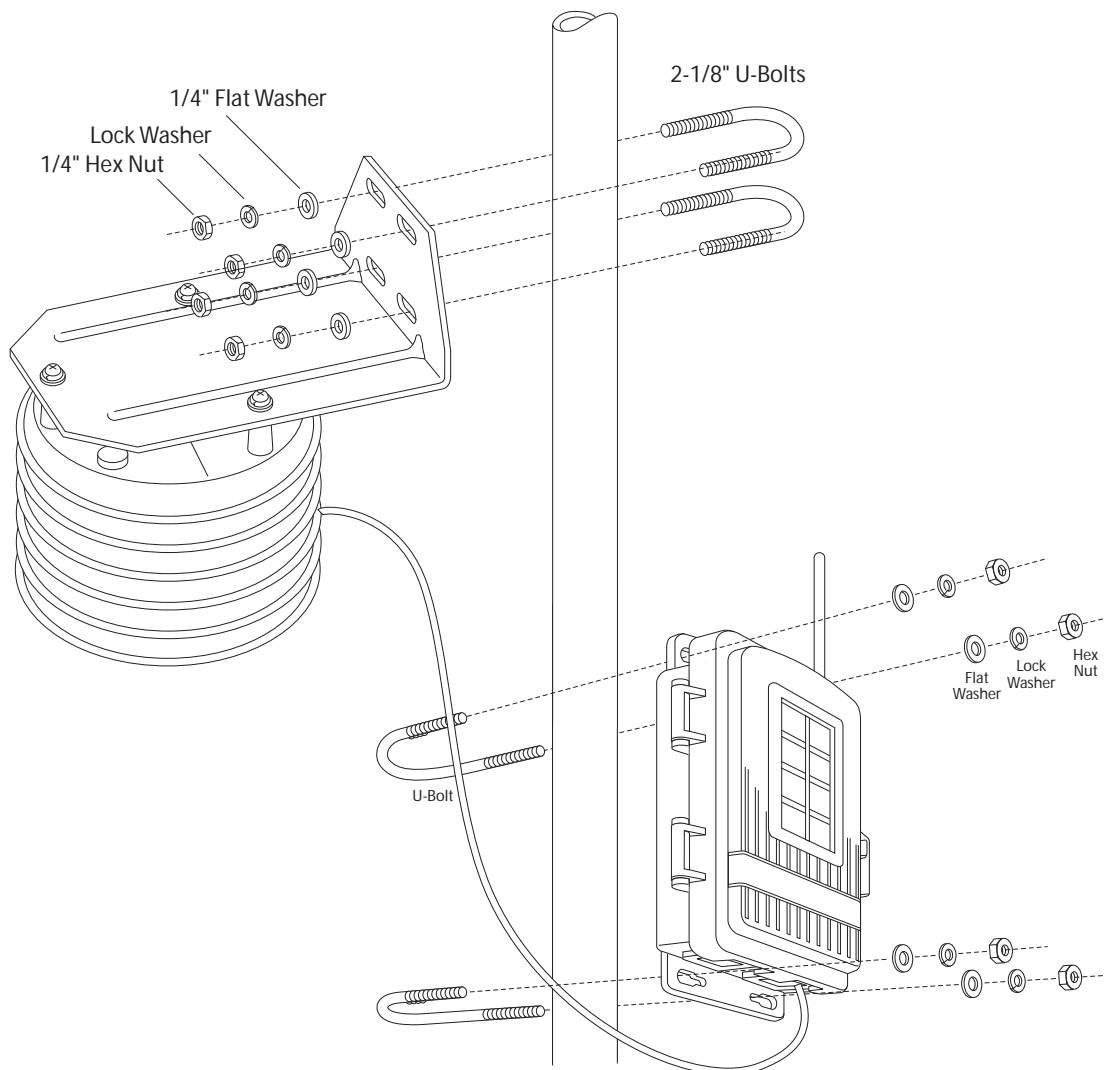
Mounting on a Pole

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

1. 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.

2. Secure the mounting bracket using 1/4" flat washers and 1/4" hex nuts. Tighten all four sets of washers and hex nuts until the mounting bracket is firmly mounted on the pole.

3. Next, install the shelter. While holding the shelter against the pole, place a U-bolt around the pole and through the two holes on at the top of the shelter.

4. Place a flat washer, a lock washer and a hex nut on each of the bolt ends. Using an adjustable wrench or 7/16" wrench, tighten the nuts.

5. Place the second U-bolt around the pole and through the two holes at the bottom of the shelter. Put a flat washer, a lock washer, and a hex nut on each bolt end, and tighten the hex nuts.

6. Use 8"cable ties to secure the sensor cable to the pole to prevent fraying in wind.

Mounting on a Pole

Mounting on a Vertical Surface

1. Using four 1/4" x 1-1/2" lag screws, attach the mounting bracket to the surface in the desired location. 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.

2. Next, install the shelter. With a 3/16" (5 mm) drill bit, drill two holes approximately 2" (50 mm) apart. Use a carpenter's level to ensure the holes will be level.

3. Drill two more holes 7-1/32" below the upper holes.

4. Insert the 1/4" x 1-1/2" lag screws through the flat washers, and through the holes at the top of the shelter into the post. Using an adjustable wrench or 7/16" wrench, tighten the lag screws.

5. Insert the 1/4" x 1-1/2" lag screws through the flat washers, and through the holes at the bottom of the shelter into the post.

6. Using an adjustable wrench or 7/16" wrench, tighten the lag screws.

1/4" x 1-1/2" Lag Screws

Sensor Cable

1/4" Flat Washers
1/4" Lock Washers
1/4" x 1-1/2" Lag Screws
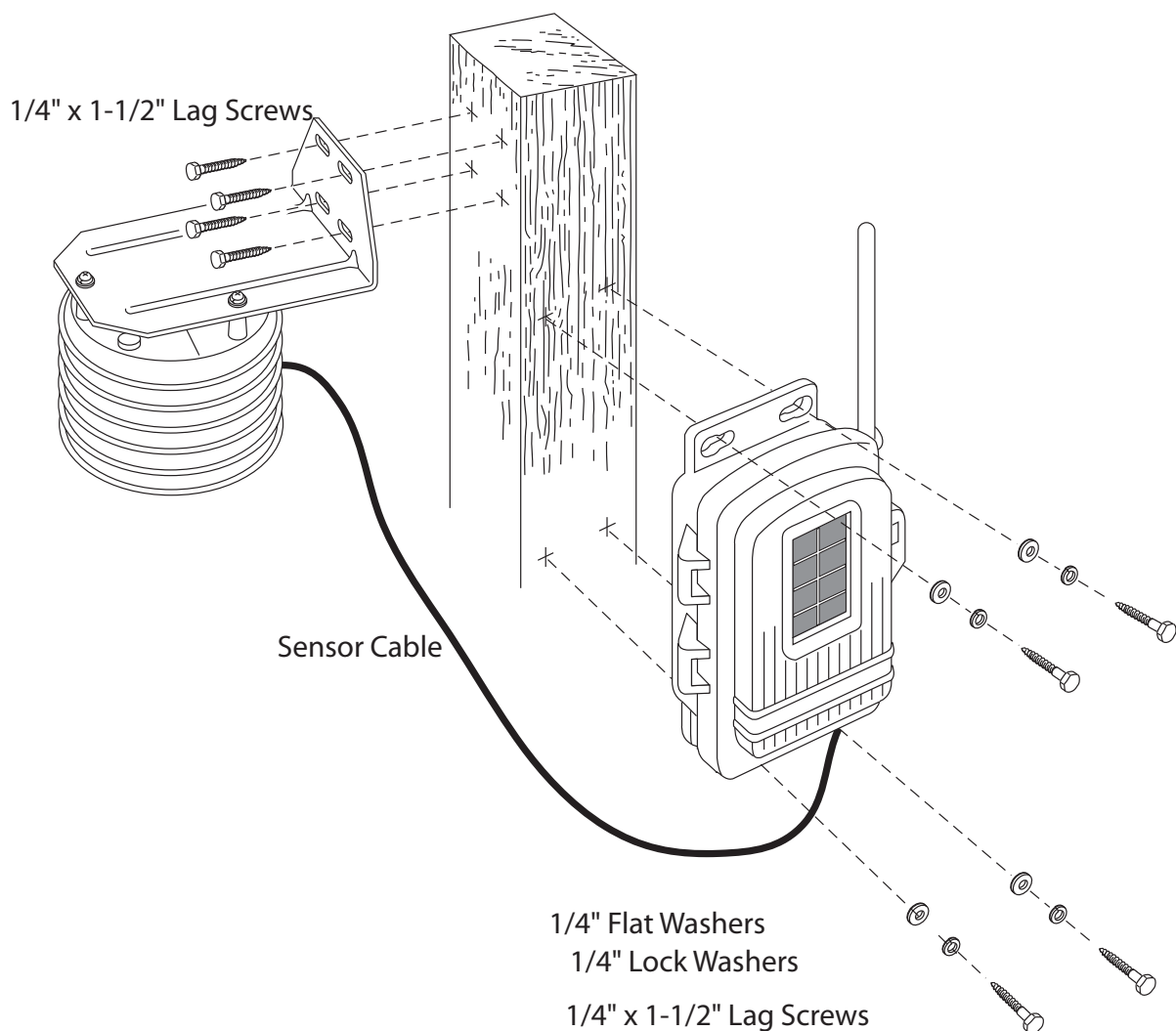
Mounting on a Vertical Surface

Maintaining Your Temperature/Humidity Station

- The ability of the radiation shield to keep fresh air flowing over the sensors will be reduced if the shield plates are dirty. Clean the surfaces of the shield plates periodically with a damp cloth.
- Keep areas between the shield plates free of debris (such as leaves, twigs, webs, and nests) that may obstruct air flow.


CAUTION: DO NOT remove nesting insects or animals by spraying insect killer of any kind into the radiation shield. Chemicals could easily damage the circuitry inside your temperature/humidity station.

- If necessary, it is possible to disassemble the radiation shield. To do this, unscrew the three machine screws attaching the mounting bracket to the radiation shield. When removing the last screw, place your hand below the radiation shield to keep it from falling. Once the screws are removed, the individual plates that make up the radiation shield can be separated and the sensor is exposed.

A Note on Securing Cables

To prevent fraying or cutting of cables, secure them so they will not whip in the wind. Secure a cable to a metal pole by wrapping electrical tape around it or using the supplied cable ties. Make sure cables are secure by placing clips or ties approximately every 3 – 5' (1 – 1.6 m).

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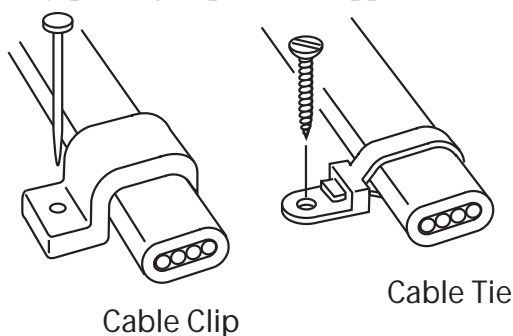
Note: Do not use metal staples or a staple gun to secure cables. Metal staples—especially when installed with a staple gun—have a tendency to cut the cables.

Contacting Davis Instruments

If you have questions about your Temperature/Humidity station, or encounter problems installing or operating the station, please contact Davis Technical Support.

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

Online;   **www.davisnet.com**
                    See the Weather Support section for copies of user manuals, product specifications, application notes, software updates, and more.

E-mail: **support@davisnet.com**

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

Specifications

General

Operating Temperature. . . . .-40° to +150° F (-40° to +65° C)

Non-operating Temperature . . . .-40° to +158° F (-40° to +70° C)

Current Draw, Sensors &
    Transmitter only . . . . .0.14 mA (average), 30 mA (peak) at 4 to 6 VDC

Battery: Sensors & Transmitter . . . . . .CR-123 3-Volt Lithium cell

Battery Life .8 months

Sensor Type
    Temperature . . . . .PN junction silicone diode
    Relative Humidity . . . . .Film capacitor element

Housing Material. . . . . .UV-resistant PVC plastic

Shelter Dimensions (without antenna).8" high x 6.5" wide x 2.5"deep
    (203 mm x 165 mm x 64 mm)

Shield Dimensions, with bracket . . . . .8.1" high x 9.5" width x 7.8" deep
    (206 mm x 241 mm x 198 mm)

Weight . . . . .3.5 lbs. (1.6 kg)

Wireless Communications

Transmit/Receive Frequency
    US Models:. . . . . .902-928 MHz FHSS,
    EU Models:. . . . . .868.0 - 868.6 MHz FHSS.

ID Codes Available 8

Output Power
    US Models . . . . .902-928 MHz FHSS: FCC-certified low power,
    less than 8 mW, no license required
    EU Models . . . . .868.0 - 868.6 MHz FHSS. CE-certified, less
    than 8 mW, no license required

Range
    Line of Sight . . . . .up to 1000 feet (300 m)
    Through Walls. . . . . .200 to 400 feet (60 to 120 m)

Sensor Output (as used by Davis Instruments weather station consoles)

Temperature (Air)
    Resolution and Units . . . . .0.1°F or 0.1°C (user-selectable)
    Range. . . . .-40° to +150° F (-40° to +65° C)
    Sensor Accuracy. . . . .±0.5°F (±0.3°C)
    Radiation Induced Error. . . . .+4°F (2°C) at solar noon (insolation = 1040
    W/m^2, avg. wind speed $\leq$2 mph (1 m/s))
    Update Interval . . . . .10 to 12 seconds
    Alarms .High & Low Threshold from Current Reading

Relative Humidity
    Resolution and Units . . . . .1% RH
    Range. .1 to 100% RH
    Accuracy. . . . .±2%
    Drift. . . . .±0.5% per year
    Update Interval . . . . .every 50 seconds to 1 minute
    Alarms .High & Low Threshold from Current Reading

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