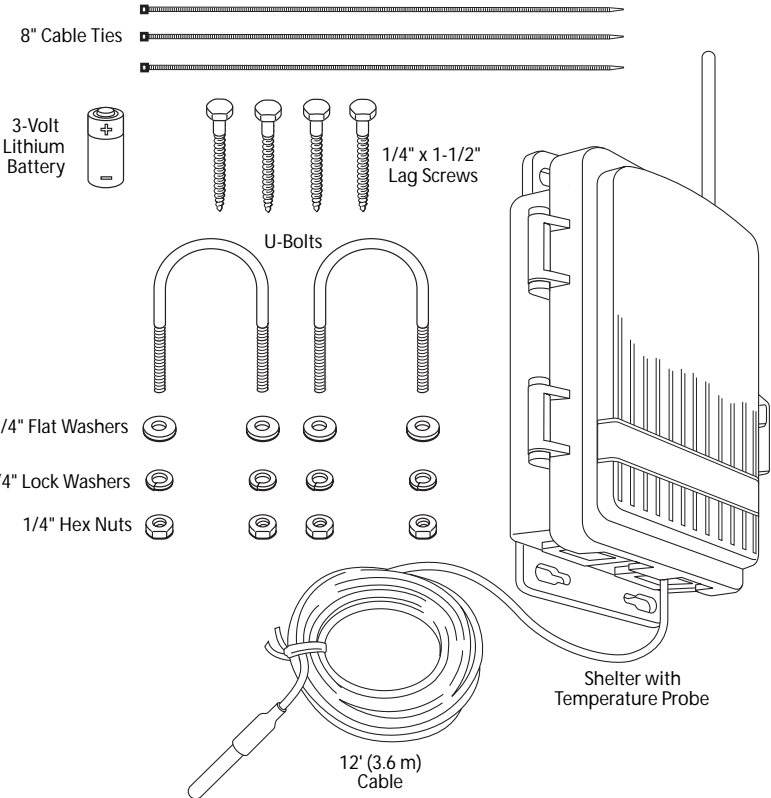# Wireless Temperature Station

## Installation Manual

Note: The Wireless Temperature Station (Davis product number 6382) is for use with wireless Vantage Pro2™ weather stations. The Wireless Temperature Station (6382) is not compatible with original Vantage Pro wireless weather stations. Original Vantage Pro wireless weather stations require the original Wireless Temperature Station (Davis product number 6380).

### Components and Hardware

The Wireless Temperature Station includes the following components and mounting hardware:



8" Cable Ties

3-Volt Lithium Battery

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

U-Bolts

1/4" Flat Washers

1/4" Lock Washers

1/4" Hex Nuts

Shelter with Temperature Probe

12' (3.6 m) Cable

### Tools for Setup

In addition to the components shown, you will need some or all of the following materials:

- Adjustable wrench or 7/16" (11 mm) wrench
- Ballpoint pen or paper clip (small pointed object of some kind)
- Drill and 3/16" (5 mm) drill bit (if mounting on a vertical surface)

## Installation Steps

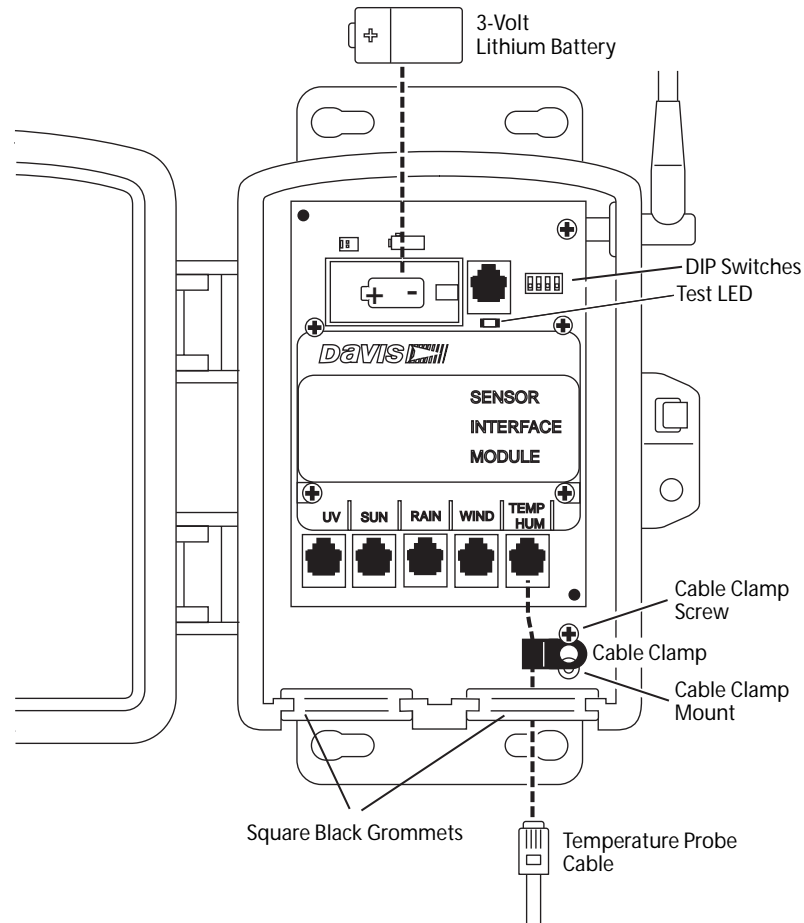For ease of installation, please follow steps in the order presented.

- Prepare the temperature station, page 3
  - Insert the battery, page 3
- Set the transmitter ID, page 3
  - Set ID on the temperature station using DIP switches, page 4
  - Set the console to recognize the signals, page 4
  - View current temperature, page 5
  - (If you don't see temperature from the correct Station No., put the transmitter in TEST mode, page 5)
- Choose a location for the wireless temperature station, page 6
- Test transmission from the proposed mounting location, page 7
- Mount the temperature station, page 8
- A note on securing cables, page 10
- Specifications, page 11

For Technical Support, please see "Contacting Davis Instruments" on page 10.

# Preparing the Temperature Station

The illustration below shows the Sensor Interface Module, or "SIM", inside the shelter.

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



3-Volt
Lithium Battery

DIP Switches
Test LED

SENSOR
INTERFACE
MODULE

UV  SUN  RAIN  WIND  TEMP HUM

Cable Clamp
Screw

Cable Clamp

Cable Clamp
Mount

Square Black Grommets

Temperature Probe
Cable

*Sensor Interface Module on Wireless Temperature Station*

Note:     Note the location of the DIP switches. You will work with them during the next installation step. The Temperature Probe Cable is installed and mounted with the cable clamp at the factory.

# Setting the Transmitter ID

Each wireless transmitting station must be set to one of eight transmitter IDs. DIP switches #1, 2 and 3 on the SIM allow you to control the ID — the "channel" the station transmits on. (DIP switch #4 is used for transmission testing, not for transmitter ID.)

The factory default transmitter ID is '1'. Looking at the table below, you can see that means the DIP switches are in the OFF position when each transmitting station leaves the factory, whether it is an ISS, a wireless temperature station, or another kind of station.

The ISS is included with every Wireless Vantage Pro2, so the console/receiver is set to find the ISS on '1'. **Set your temperature station to its own ID number.**

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 table below:

| 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 its own transmitter ID.
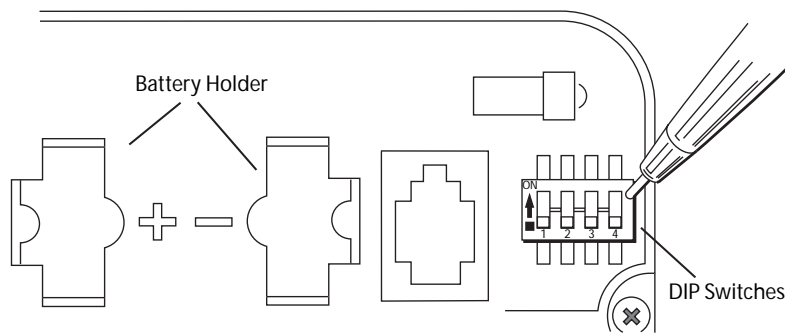


*DIP Switches in Top-right Corner of SIM (Illustration has been enlarged for clarity)*

Note:    DIP Switches 1, 2 and 3 are for receiver ID settings. DIP Switch 4 is for TEST mode only.

### Setting Console/Receiver(s) to Same ID

1. Put your console into Setup Mode — press and hold DONE and press the DOWN arrow (-).

Screen 1: Transmitters displays on the console screen. 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 temperature 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, go to "TEST mode" in the next section.

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 station.

3. Press the LEFT (<) or RIGHT (>) arrows to scroll through transmitter IDs.
   When you see the ID you chose for the temperature station, use the UP (+) or DOWN (-) arrows to activate reception of that ID code. Make sure the screen shows "ON".

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

5. To exit Setup Mode, press and hold DONE.
   (See the **Vantage Pro2 User's Manual & Setup Guide**: "Setup Mode – Screen 2: Selecting Transmitters.")

## Viewing Current Temperature

Press TEMP until you see an 'outside' temperature displayed on the console screen, with the correct Station No. displayed above or below it. This confirms communication between your temperature station and the console — go on to "Choosing a location for the Wireless Temperature Station" on page 6.

### If You Do Not See Current Values from the Correct Station ID Number

Verify that the console/receiver is powered and is not in Setup Mode (exit Setup Mode by pressing and holding DONE for a moment). Then, on the temperature 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 the transmitter in TEST mode.

### TEST mode

DIP switch #4 on the SIM (see illustration on page 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 flashes each time it transmits:

- The LED immediately flashes once to show that the light itself functions.
- The LED flashes each time the transmitter broadcasts a signal, which should be every 2.5 seconds.

If the LED flashes only once and then remains dark, there is a problem with the transmitter. See "contacting Davis Instruments" on page 10.

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 transmitter.
   Review the procedure on page 3.
2. The ID was not correctly set on the console/receiver.
   Review the procedure on page 4.
3. Reception is being disrupted by RF (radio frequency) interference.
4. There is a problem with the console/receiver.
   See "Contacting Davis Instruments" on page 10.

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

## Choosing a Location for the Wireless Temperature Station

Locate the station's temperature probe where it will not be exposed to sources of heat or cold that could distort temperature measurements.

The temperature probe is waterproof and may be submerged. It can be used to measure soil or water temperature. The transmitter shelter is weatherproof, but not waterproof. Do not submerge the transmitter shelter.

Consider these factors when locating the temperature probe to measure air temperature:

- Place the probe where it will not be in direct sunlight and where it will have limited exposure to reflected sunlight.
  If possible, place the sensor at least 5' (1.5 m) from any surface which is exposed to direct sunlight.
- Limit the probe's exposure to night sky.
  The temperature probe will cool down faster than the surrounding air.

Inaccurate temperature readings from exposure to sunlight and night sky are due to radiation effects. These effects can be minimized by placing your temperature probe in a Radiation Shield #7714.

The following factors should be considered whether your temperature probe is inside a radiation shield or not:

- If placing the probe on the outside of a building, a good location is under the eaves on the north side of the building. (In the Southern Hemisphere, the south side of a building is preferable.)
- Place the probe at least 10' (3 m) away from lights or lamps.
- Place the probe at least 5' (1.5 m) from chimneys and exhaust vents.

## Range of Wireless Transmission

The range of wireless transmission depends on many factors. For the best reception, position the transmitter shelter and your console/receiver as close together as possible.

Range is up to 1,000' (300 m) in the line of sight, under optimal conditions. Typical range under most conditions is 200' to 400' (75 to 150 m), but this may be reduced by walls, ceilings, trees, or foliage. Radio-frequency interference (RF) can also reduce transmission distance. Cordless phones and ham radios are common examples of RF interference.

A metal roof or other large metal structure can interfere with the signal (aluminum siding, a furnace with metal ducts, and your refrigerator are examples). Sometimes transmission between wireless units is obscured by something you cannot identify, or by some obstacle that you can't work around. If necessary, consider using Wireless Repeater #7626 or #7627 to strengthen the signal or increase the distance between the transmitter and the console/receiver.

## Testing Transmission from Proposed Location

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

Place the shelter at the intended mounting site, or have someone hold it there, so you can walk around with the console/receiver for a few minutes. Rotating the antenna may help to improve reception.

Test wireless reception anywhere you might want to use or mount your console/receiver now or in the future. Take your time. If you aren't picking up strong signals where you intend to place your console, better to move the shelter now than after it has been mounted. Experiment.

If you have irregular terrain in the area, it may interfere with the signal. For example, if the transmitter is mounted downhill from the console/receiver, the ground may block a wide angle of the transmitted signal.

# Mounting the Wireless Temperature Station

## Mounting on a Pole

1. 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.

2. Place a flat washer, a lock washer and a hex nut on each of the bolt ends.
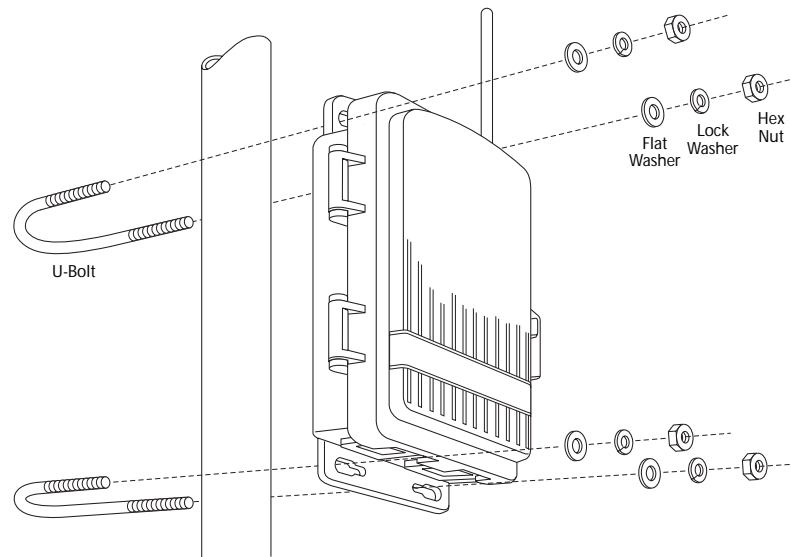


*Mounting Temperature Station on a Pole*

3. Using an adjustable wrench or 7/16" wrench, tighten the nuts.

4. 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.

## Mounting on a Vertical Surface

1. 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.

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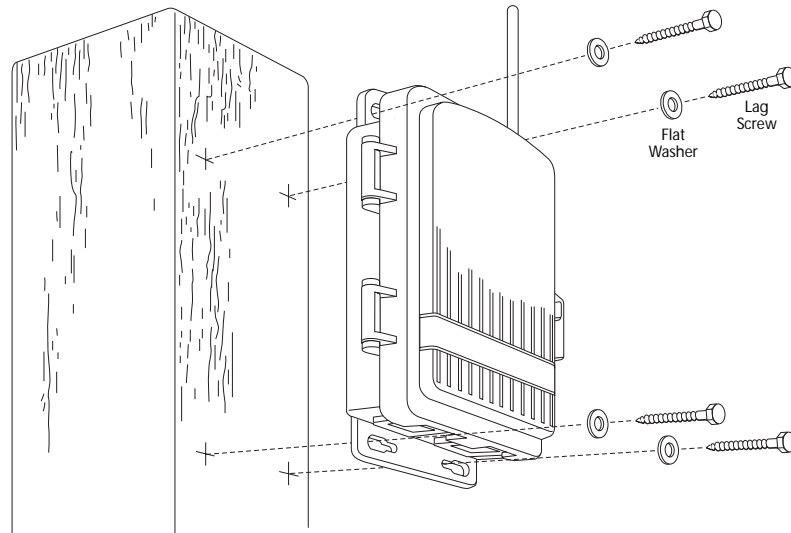


*Mounting Temperature Station on a Vertical Surface*

3. 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.

4. 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.

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

### A Note on Securing Cables

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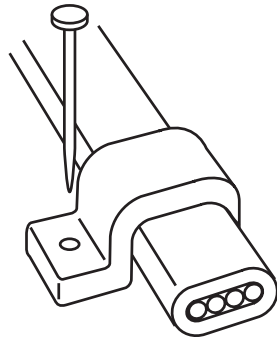


Cable Tie

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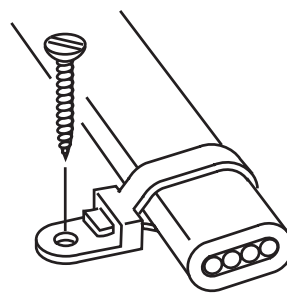
Note:     Do not use metal staples or a staple gun to secure cables. Metal staples—especially when installed with a staple gun—have a tendency to cut the cables.

## Contacting Davis Instruments

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

**(800) 678-3669** Toll-Free Order Line, Monday – Friday, 7:00 a.m. – 5:30 p.m. Pacific Time. Our customer service representatives can answer most questions and assist you with your purchases.

**(510) 732-9229** For callers outside the USA or Canada.

**(510) 670-0589** Fax to Customer Service or Tech 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.

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

**sales@davisnet.com** E-mail to Customer Service.

**info@davisnet.com** General e-mail.

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

# Specifications

**General**

| | |
|---|---|
| Operating Temperature . . . . . . . . . . . . . . . . . . . . . . | -40° to +150°F (-40° to +65°C) |
| Non-operating Temperature . . . . . . . . . . . . . . . . . . | -50° to +158°F (-45° to +70°C) |
| Sensor Type . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | Thermistor |
| Current Draw . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 0.14 mA (average), 30 mA (peak) at 4 to 6 VDC power |
| Battery . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | CR123A 3-Volt Lithium cell |
| Battery Life . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 8 months |
| Housing Material . . . . . . . . . . . . . . . . . . . . . . . . . . | UV-resistant PVC plastic |
| Dimensions . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 6.25" x 2.25" x 7.875" (158.75 mm x 57.15 mm x 200 mm) |
| Weight. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 1.06 lb. (.49 kg) |

**Wireless Communications**

| | |
|---|---|
| Transmit/Receive Frequency . . . . . . . . . . . . . . . . | US Models: 902-928 MHz FHSS, Overseas Models: 868.0 - 868.6 MHz FHSS. |
| ID Codes Available . . . . . . . . . . . . . . . . . . . . . . . . | 8 |
| Output Power. . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 902-928 MHz FHSS: FCC-certified low power, less than 8 mW, no license required 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 (75 to 150 m) |

**Sensor Output**

Outside Temperature (Air)

| | |
|---|---|
| Resolution and Units . . . . . . . . . . . . . . . . . . . . | 1°F or 1°C (user-selectable) |
| Range . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | -40° to +150°F (-40° to +65° C) |
| Sensor Accuracy . . . . . . . . . . . . . . . . . . . . . . . | ±1°F (±0.5°C) under 110°F (43°C), ±2°F (±1°C) over 110°F (43°C) |
| Update Interval . . . . . . . . . . . . . . . . . . . . . . . . | 10 seconds |
| Data. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | Instant Reading |
| Alarms . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | High and Low Thresholds from Instant Reading |

## 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.