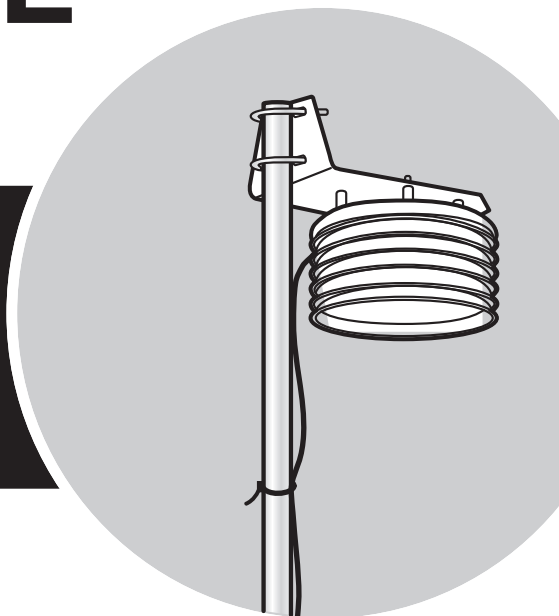


# USER MANUAL

## Temperature Humidity Sensor



Product number 6830

**DAVIS** 

Davis Instruments, 3465 Diablo Avenue, Hayward, CA 94545-2778 U.S.A. • 510-732-9229 • [www.davisnet.com](http://www.davisnet.com)



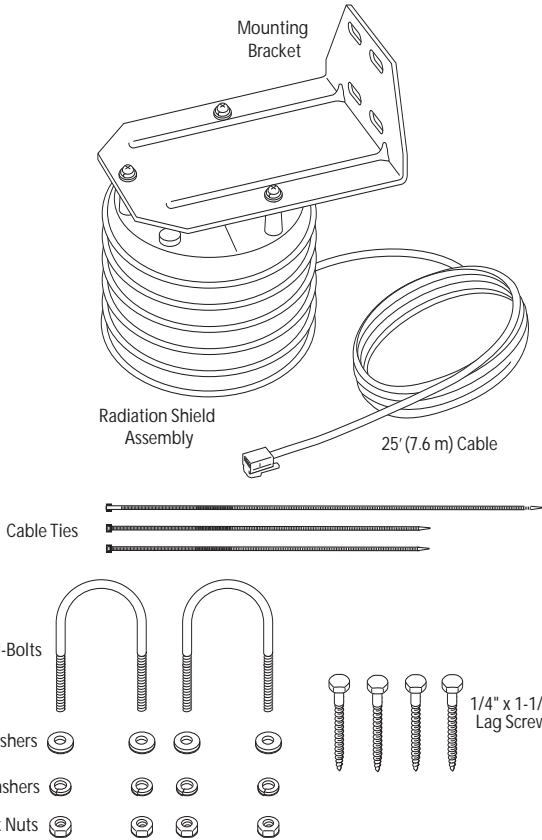
# Temperature/Humidity Sensor

## Product No. 6830

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### Components

The Temperature/Humidity Sensor consists of temperature and humidity sensors located in a radiation shield, with a 25' (7.6 m) sensor cable.



### 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)

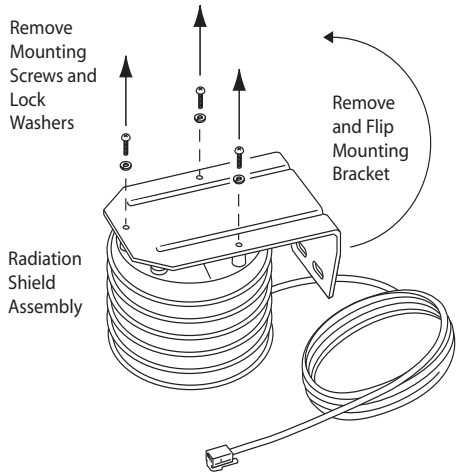
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## Prepare the Temperature/Humidity Sensor

### Rotate the Mounting Bracket.

To facilitate packing and shipping the Temperature/Humidity Sensor, 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 Sensor on a table or other level work surface.
2. Remove 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.
4. Fasten the mounting bracket in place using the three screws and lock washers.



## Before You Install the Temperature/Humidity Sensor

### Choose a Location

It is important to remember to choose a location that best represents the environment you would like to monitor and/or protect. Consider the following factors as you choose a location:

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

### For In-Canopy Monitoring Locations

- Place the sensor well inside the canopy, thoroughly surrounded by vegetation and out of direct sunlight, as much as possible.

### For Frost Monitoring Locations

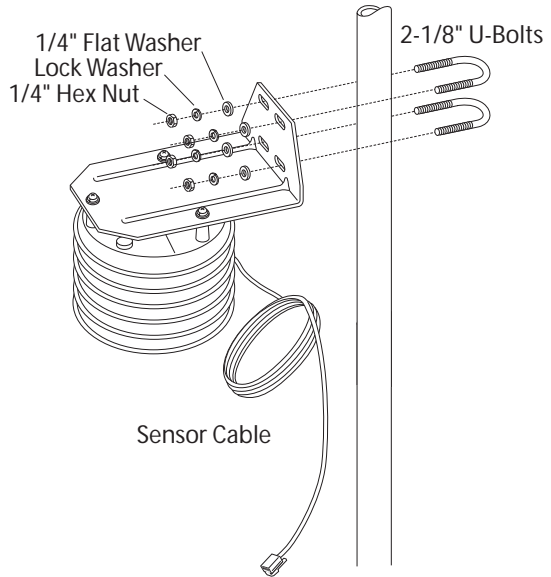
- Place the sensor at about 5' (1.5m) in a grassy, open field that receives the coldest temperatures adjacent to the area at risk of frost damage.

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## Mounting on a Pole

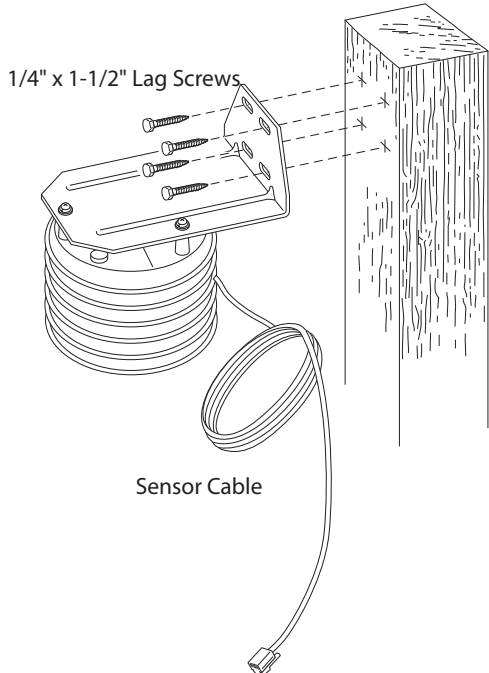
Use a pole having an outside diameter between 1" and 1-1/4" (25 – 31 mm).

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, lock 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. Use the longer cable tie to secure the coil of unused cable. Use the 8" cable ties to secure the uncoiled sensor cable to the pole to prevent fraying in wind.



## Mounting on a Post

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. Using an adjustable wrench or 7/16" wrench, tighten the lag screws.
3. Use the longer cable tie to secure the coil of unused cable. Use the 8" cable ties to secure the uncoiled sensor cable to prevent fraying in wind.



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## Maintaining Your Temperature/Humidity Sensor

- 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.

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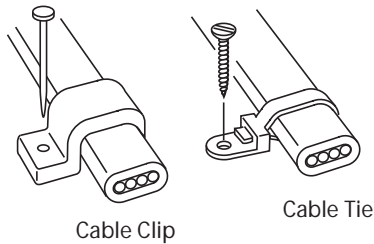
**CAUTION:** DO NOT remove nesting insects or animals by spraying insect killer of any kind into the radiation shield. Chemicals could easily damage the circuitry inside your temperature/humidity sensor.

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- 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).



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**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.

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# Specifications

## General

Operating Temperature . . . . .	-40° to +150° F (-40° to +65° C)
Non-operating Temperature . . . . .	-40° to +158° F (-40° to +70° C)
Sensor Type	
Temperature . . . . .	PN junction silicone diode
Relative Humidity . . . . .	Film capacitor element
Housing Material . . . . .	UV-resistant PVC plastic
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)

## 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 <sup>2</sup> , avg. wind speed ≤2 mph (1 m/s))
Update Interval . . . . .	10 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 . . . . .	10 seconds
Alarms . . . . .	High & Low Threshold from Current Reading

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## Contacting Davis Instruments

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

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

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- Online:** [www.davisnet.com](http://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](mailto:support@davisnet.com)
- Telephone:** (510) 732-7814  
Monday – Friday, 7:00 a.m. – 5:30 p.m. Pacific Time.

