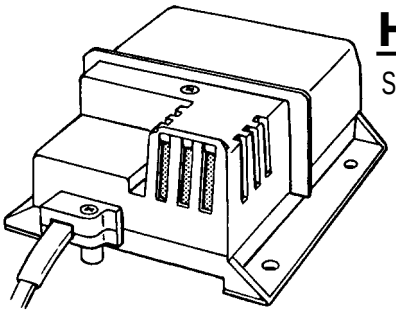
EXTERNAL TEMPERATURE/ HUMIDITY SENSOR

STANDARD & INDUSTRIAL



The External Temperature / Humidity Sensor (T / H sensor), may be used with the Weather Monitor II®, GroWeather®, Energy EnviroMonitor®, and the Health EnviroMonitor®. The T / H sensor enables you to display temperature and humidity-related conditions. For a list of the conditions you may display using the T / H Sensor, consult your station manual.

COMPONENTS

The T / H Sensor includes the following components. Please make sure you have all listed components before continuing.

- **Temperature/Humidity Sensor with cable**
  The standard version comes with a 40' (12 m) cable. The industrial version comes with a 16' (5 m) cable.
- **Five #4 x 1/2" screws**
- **One #4 Flat Washer**
- **One Cable Clamp**

TOOLS AND MATERIALS NEEDED

In addition to the components listed above, you may need the following tools and materials. Please be sure you have everything you need before beginning the installation.

- **Small Phillips-head screwdriver**
- **Drill with #43 (.089", 2.3 mm) drill bit**
- **Cable clips or weather-resistant cable ties with screw holes or other means for mounting**

TESTING THE T/H SENSOR

Test the sensor before installing it.

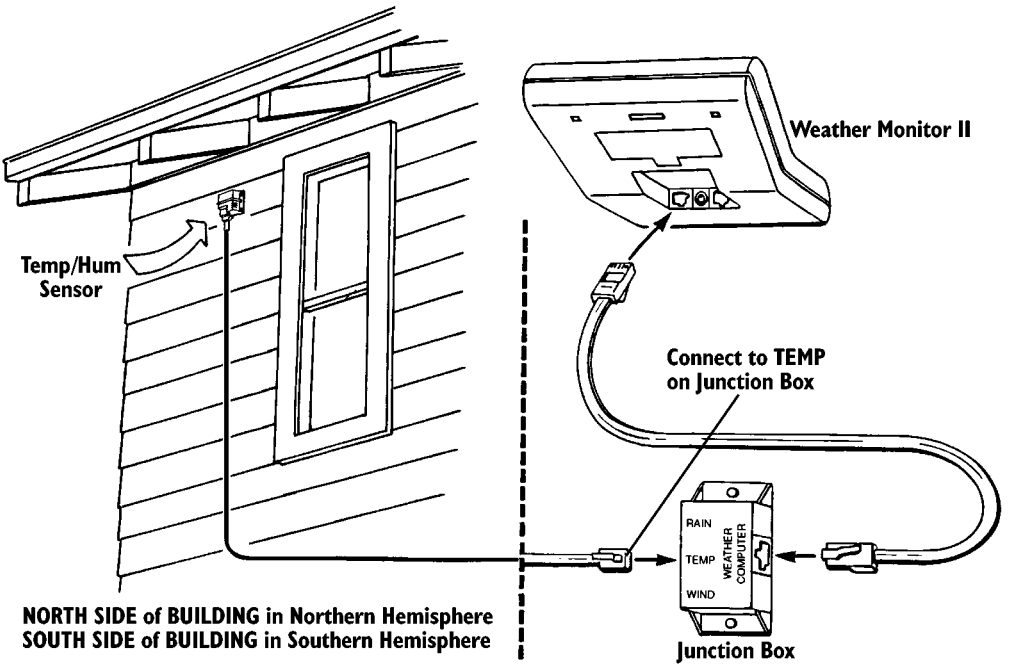
1. **Attach the sensor cable to the appropriate connector on the junction box/sensor interface module (SIM).**
   Consult the station manual or installation manual.
2. **Press the appropriate key on your console as necessary to make sure you are getting an outside, air, or soil temperature reading on the console.**
3. **Press the appropriate key on your console as necessary to make sure you are getting an outside humidity reading on the console.**

INSTALLING THE T/H SENSOR

Follow the instructions in this section to install your sensor. Make sure you read "Choosing a Location for the T/H Sensor" on page 5 as it contains important information concerning placement of the sensor.

Typical Weather Monitor II Installation

The illustration below shows a typical T/H Sensor installation for the Weather Monitor II.

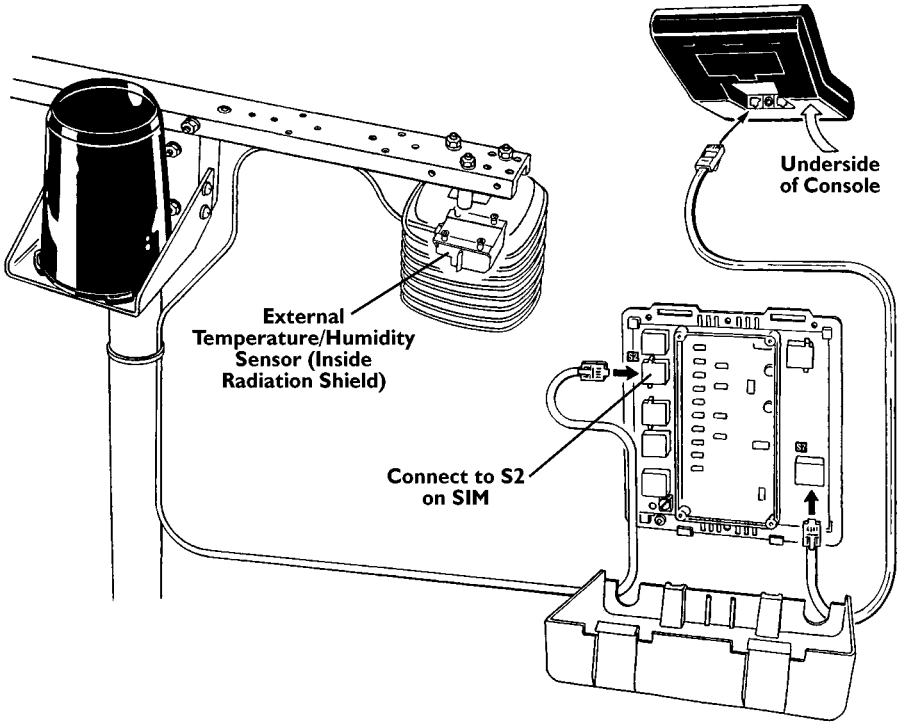


TYPICAL WEATHER MONITOR II INSTALLATION

Note: *You may also use the Radiation Shield and Sensor Mounting Arm (pictured below) if desired.*

Typical Standard GroWeather/EnviroMonitor Installation

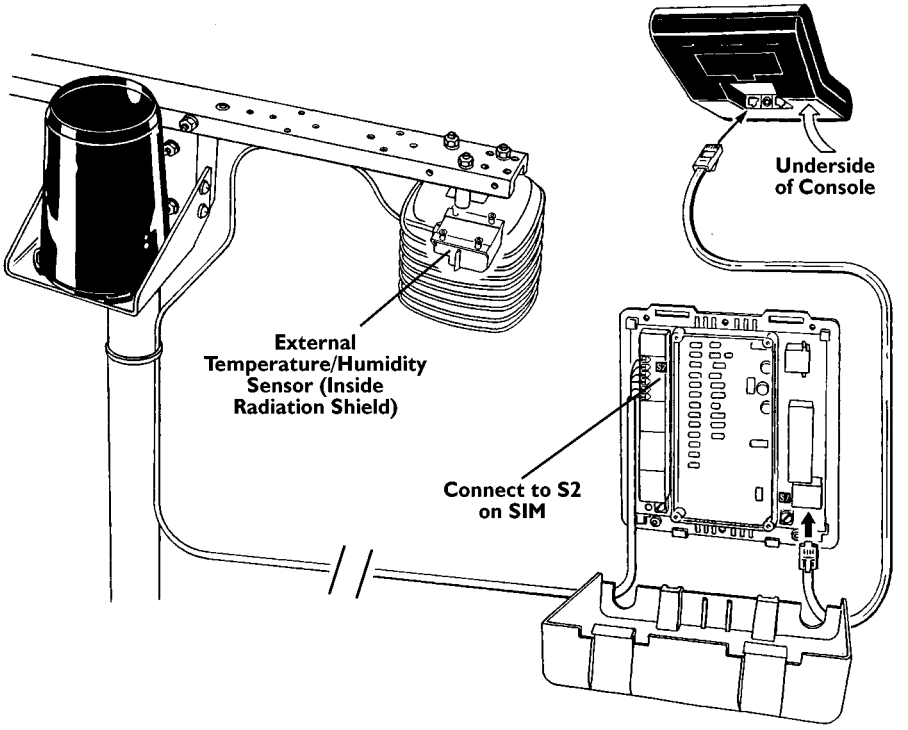
The illustration below shows a typical standard T / H Sensor installation for the GroWeather, Energy EnviroMonitor, or the Health EnviroMonitor.



TYPICAL STANDARD GROWEATHER/ENVIROMONITOR INSTALLATION

Typical Industrial GroWeather/EnviroMonitor Installation

The illustration below shows a typical industrial T/H Sensor installation for the GroWeather, Energy EnviroMonitor, or the Health EnviroMonitor.



TYPICAL INDUSTRIAL GROWEATHER/ENVIROMONITOR INSTALLATION

Choosing a Location for the T/H Sensor

Use the suggestions below to find a suitable location in which to mount the sensor. Care taken in choosing a location improves the accuracy, reliability, and durability of the sensor. The ideal location would be on the NORTH SIDE of the building (south side in the Southern Hemisphere).

Note: *You should always take into consideration, when choosing a location for the sensor, what objects are nearby. Objects which heat up in direct sunlight or produce radiative cooling effects may affect the temperature of the air in the vicinity, which will affect the temperature readings and (because relative humidity is temperature dependent) the humidity readings from the sensor.*

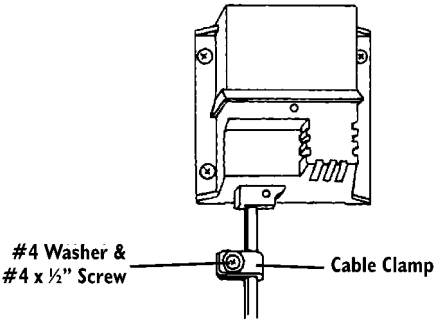
Look for a location which satisfies the following requirements (Davis' Radiation Shield provides ideal protection for the sensor):

- **Place the sensor in a location shielded from rain and other sources of water (such as rainfall runoff). It is important that no water strike the sensor.**
- **Place the sensor in a location 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 feet (1.5 m) from any surface which is exposed to direct sunlight because the heat from this surface may affect air temperature readings in the vicinity.
- **Limit the exposure of the sensor to the open night sky.**
  If you are unsure about a location's exposure to the night sky, check for dew at that location on a light dewy morning. If the area is dry, the location should work well.
- **Place the sensor in a location at least 10 feet (3 m) away from any lights or lamps.**
- **Place the sensor at least 5 feet (1.5 m) from man-made sources of heat, such as vents.**
- **Keep the sensor away from AC power lines.**
  Keep the sensor and most of the cable at least 10 feet (3 m) from 110 Vac, 60Hz utility power. Do not run the sensor cable parallel to house wiring. Mount the sensor at least 30 feet (9 m) from high-voltage power lines and transformers.
- **When running the sensor cable, try not to run it across large metal objects (e.g., aluminum siding).**

To Mount the T/H Sensor

If installing the T / H sensor in the radiation shield, consult the radiation shield manual.

1. **If necessary, disconnect the sensor cable from the junction box/SIM.**
2. **Find a suitable location for the sensor using the suggestions above as a guide.**
3. **Hold the sensor housing against the surface on which you plan to mount it and use a pencil to mark the location of the four holes on either side of the sensor housing.**
4. **Use a drill with a #43 (.089", 2.3 mm) drill bit to make pilot holes in these locations.**
5. **Drive the four #4 x 1/2" screws through the holes on the sensor housing and into the mounting surface.**
6. **If using the industrial version of the sensor, secure the cable to the mounting surface using the cable clamp, a #4 x 1/2" screw, and a #4 washer.**

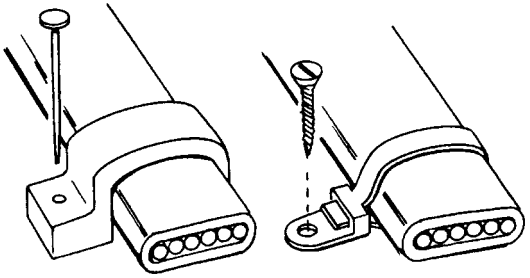


SECURING INDUSTRIAL CABLE

7. **Connect the sensor cable to the junction box/SIM.**
   Consult your station or installation manual for instructions.

Routing Sensor Cable

To prevent fraying or cutting of the cable where it is exposed to weather, it is important that you secure it so it doesn't whip about in the wind. For example, you might want to 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). 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.



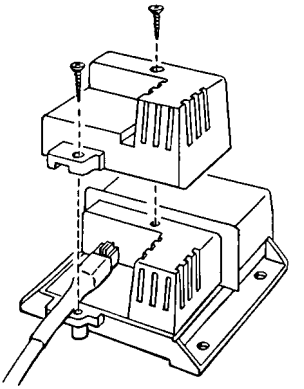
SECURING CABLE (STANDARD CABLE SHOWN)

Note: *When running the sensor cable, try not to tug on the cable in such a way as to loosen the connections between cables. Also, make sure the sensor cable is not so taut that connections loosen or pull free due to the strain. Many sensor problems occur because cable connections come loose. If you need to check you cable connection to the sensor itself, see the section below.*

DETACHING THE CABLE FROM THE SENSOR

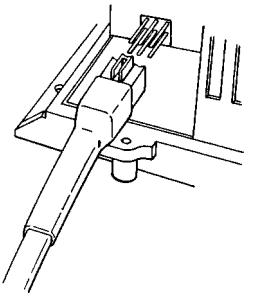
If you ever need to remove the sensor or check the sensor cable's connection to the sensor and want to leave the cable in place when you do so, follow the procedure below.

To Detach the Sensor Cable from the Sensor



1. **Remove the front piece of the sensor housing by removing the two screws on top of the housing.**
2. **Once the screws are out, lift the front piece away.** Keep the screws and the front piece in a safe location until you reattach the front piece.
3. **Detach the cable connector from the pin header by pulling straight back on the connector. Do not tug on the cable itself to detach the connector.**

To Reattach the Sensor to the Cable



1. **If necessary, remove the front piece from the sensor as described above.**
2. **Reconnect the cable to the sensor by sliding the cable connector over the pins on the pin header. As you do so, make sure the tab is on top of the cable connector.**
3. **Replace the front piece. Make sure the sensor cable runs through the cable slot created by the front piece and the sensor housing.**
4. **Secure the front piece by replacing the two screws.**

DISPLAYING DEW POINT ON THE WEATHER MONITOR II

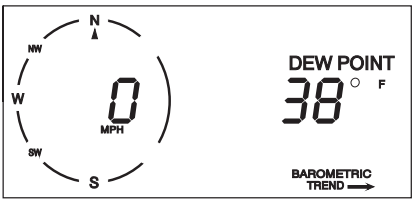
Follow the directions below to use the dew point function on your Weather Monitor II. For a description of dew point, consult the appropriate section of the Weather Monitor II manual.

Note: *Instructions for displaying dew point are contained in the GroWeather, Energy EnviroMonitor, and Health EnviroMonitor manuals.*

You may display dew point in either ˚F or ˚C. The Weather Monitor II records high and low dew points, and has an alarm to alert you when temperature comes within 2˚F (1˚C) of dew point.

To Display the Current Dew Point

Press DEW. The dew point and the words DEW POINT appear on the display.



CURRENT DEW POINT

To Change the Unit of Measure

1. **Press DEW.**
2. **Press UNITS.**

   The computer switches from ˚F to ˚C (or vice versa) and the symbol in the display changes from F to C (or vice versa). To return to the original format, press UNITS again

To Display High and Low Dew Points

1. **Press DEW.**
2. **Press RECL.**

   The high dew point appears. After a few seconds, the display will show the time the high was recorded, and then the date it was recorded.
3. **Press RECL again.**

   The low dew point appears. After a few seconds, the display will show the time the low was recorded, and then the date it was recorded.
4. **Press any key to exit.**

To Clear High and Low Dew Points

1. **Press DEW.**
2. **Press RECL once or twice to select the high or low dew point, as desired.**
3. **Press CLEAR and hold it down.**

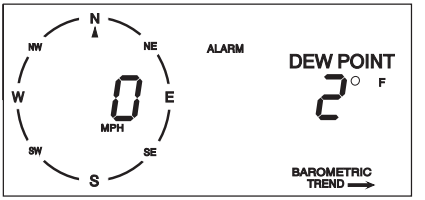
   The value will flash several times. When the value stops flashing it means that the high / low has been cleared. It is not uncommon for another high / low reading to appear almost immediately. This is simply because the Weather Monitor II is constantly in the process of recording new highs and lows.
4. **Press any key to exit.**

   High and low dew points are independent of each other. Clearing the high dew point does not clear the low dew point, and vice versa. You must clear each individually.

To Set the Dew Point Alarm

1. **Press DEW.**
2. **Press ALARM.**
3. **Press ENTER.**

   The display will show 2˚F (1˚C) which is the only possible setting for the dew point alarm.



DEW POINT ALARM

4. **Press any key to exit.**

   The alarm sounds if dew point and temperature are within 2˚F (1˚C).

WEATHER MONITOR II HUMIDITY CALIBRATION NUMBER

Versions of the Weather Monitor II manufactured after 1994 allow the user to set a calibration number (CAL) for outside humidity. To determine which version of the Weather Monitor II you have, look at the manufacturing code (Mfg. Code) on the underside of the console. If the manufacturing code begins with the letters "M" or “MB” (e.g., "MB30302F41") you will not be able to set CAL for Outside Humidity.

Note: *The GroWeather, Energy EnviroMonitor, and Health EnviroMonitor allow the user to set a calibration number for outside humidity. See the appropriate manual for instructions.*

Change CAL if you wish to adjust the Weather Monitor II's outside humidity reading. Note that a calibration number exists for outside humidity only.
Calibrated Outside Humidity = Outside Humidity + CAL
Default CAL = 0.

Note: *For general information on CAL numbers, consult the Weather Monitor II manual.*

TECHNICAL SUPPORT

Before calling Technical Support (1-510-732-7814), carefully check all cable connections from the sensor to the console. (Cable connections account for a large portion of the potential sensor problems.) Connections should be firmly seated in the jacks and plugged in straight. If you think a connection may be faulty, try jiggling the cable while looking at the display. If a reading appears intermittently on the display as you jiggle the cable, the connection is faulty.

Product Numbers: 7859 & 7860

Davis Instruments Part Number: 7395-027
External Temperature / Humidity Sensor, Standard & Industrial
Rev. F Manual (7 / 8 / 99)

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

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