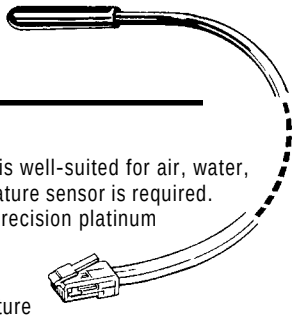
EXTERNAL TEMPERATURE SENSOR, **Standard**



The External Temperature Sensor is used to measure temperatures in general conditions. It is well-suited for air, water, or soil temperature measurements, and it may be used anywhere a reliable, low-cost temperature sensor is required. The sensor is epoxy-encapsulated in a vinyl cap. The External Temperature Sensor uses a precision platinum wire thermistor as a sensor. The thermistor produces a resistance change proportional to temperature.

To ensure accurate readings when measuring outdoor air temperature, the External Temperature Sensor should be shielded from direct sunlight and other sources of reflected or radiated heat. We recommend the use of a Davis Radiation Shield (#7714) or its equivalent for this purpose.

SPECIFICATIONS

General

Sensor Type (see Note 2) . . . . . Platinum wire thermistor

Time Constant

In Still Air . . . . . 100 seconds

In Liquid . . . . . 28 seconds

Attached Cable Length . . . . . 25' (7.6 m)

Cable Type . . . . . 4-conductor, 26 AWG

Connector . . . . . Modular connector (RJ-11)

Recommended Maximum Cable Length (see Note 1 below) . 300' (90 m) from Sensor to SIM

Housing Material . . . . . Black Vinyl

Housing Dimensions . . . . . 0.25" diameter x 1.25" long (6.5 mm diameter x 32 mm long)

Weight . . . . . 4.5 oz. (128 g)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

Range . . . . . -50° to 140° F (-45° to 60° C)

Accuracy (see Note 2) . . . . . ±1°F (±0.5°C)

Resolution . . . . . 1.0° or 0.1°, selectable, F or C

Sample and Display Update Interval . . . . . 16 seconds (max)

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

Temperature . . . . . Average over archive interval

High and Low Temperature . . . . . Maximum and minimum values during archive interval

Input/Output Connections

Black & Red . . . . . Common

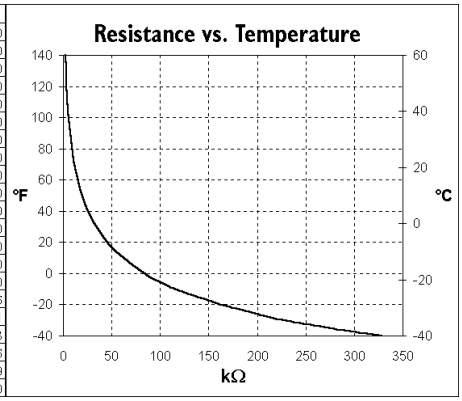
Green & Yellow . . . . . Temperature (variable resistance to common); 10KOhm, nominal

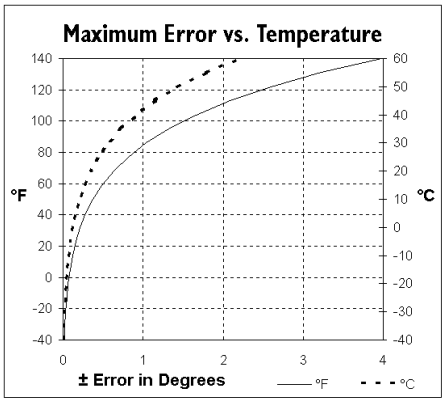
NOTES

1. There is no absolute maximum cable length. Increasing the cable length above 300' (90 m) causes an increased measurement error at a rate of approximately +0.06˚ F (+0.03˚ C) per 100' (30 m) at 136˚ F (60˚ C) and +0.012˚ F (+0.006˚ C) per 100' (30 m) at 77˚ F (25˚ C).

2. The chart and graph on the left show the resistance of the sensor. The graph on the right shows the maximum error of an uncalibrated sensor.

°F	°C	kΩ
-40	-40	328.400
-31	-35	237.700
-22	-30	173.900
-13	-25	128.500
-4	-20	95.890
5	-15	72.230
14	-10	54.890
23	-5	42.070
32	0	32.510
41	5	25.310
50	10	19.860
59	15	15.690
68	20	12.490
77	25	10.000
86	30	8.060
95	35	6.536
104	40	5.331
113	45	4.373
122	50	3.606
131	55	2.989
140	60	2.490

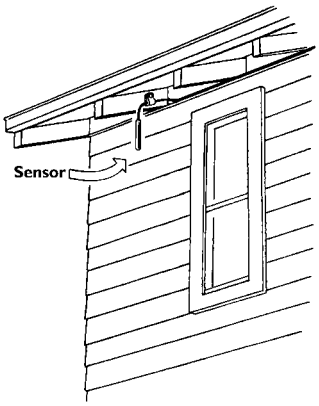


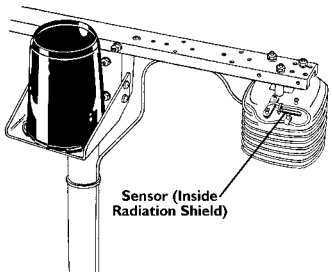


Davis Instruments 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com

DS7817-00 (Rev. C, 7/14/99)

INSTALLATION OPTIONS (AIR TEMPERATURE)

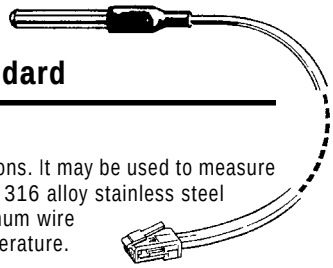




STAINLESS STEEL TEMPERATURE PROBE, **Standard**

7818

SENSORS



The Stainless Steel Temperature Probe is designed for use in physically-demanding conditions. It may be used to measure the temperature of solids, soils, liquids, or gasses. The sensor is epoxy-encapsulated in a 316 alloy stainless steel body with vinyl strain relief. The Stainless Steel Temperature Probe uses a precision platinum wire thermistor as a sensor. The thermistor produces a resistance change proportional to temperature.

To ensure accurate readings when measuring outdoor air temperature, the Stainless Steel Temperature Probe should be shielded from direct sunlight and other sources of reflected or radiated heat. We recommend the use of the Radiation Shield for this purpose.

SPECIFICATIONS

General

Sensor Type (see Note 2) . . . . . Platinum wire thermistor

Time Constant

In Still Air . . . . . 240 seconds

In Liquid . . . . . 20 seconds

Attached Cable Length . . . . . 25' (7.6 m)

Cable Type . . . . . 4-conductor, 26 AWG

Connector . . . . . Modular connector (RJ-11)

Recommended Maximum Cable Length . . . . . 300' (90 m) from Sensor to SIM, see Note 1 below

Housing Material . . . . . 316 alloy stainless steel housing with vinyl strain relief

Housing Dimensions . . . . . 0.312" diameter x 2.5" long (8 mm diameter x 64 mm long)

Weight . . . . . 4.5 oz. (128 g)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

Range . . . . . -50° to 140° F (-45° to 60° C)

Accuracy . . . . . ±1°F (±0.5°C), see Note 2 below

Resolution . . . . . 1.0° or 0.1°, selectable, F or C

Sample and Display Update Interval . . . . . 16 seconds (max)

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

Temperature . . . . . Average over archive interval

High and Low Temperature . . . . . Maximum and minimum values during archive interval

Input/Output Connections

Black & Red . . . . . Common

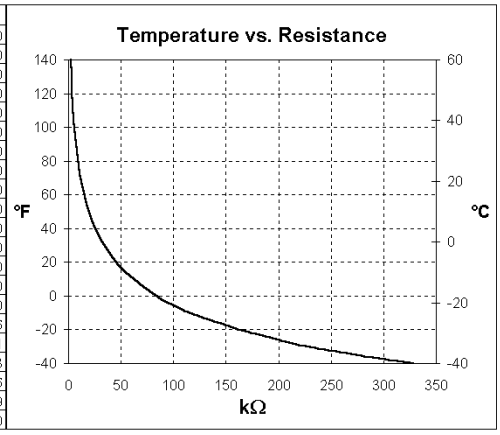
Green & Yellow . . . . . Temperature (variable resistance to common); 10KOhm, nominal

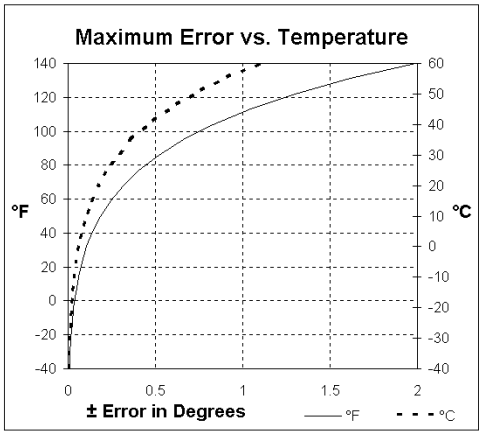
NOTES

1. There is no absolute maximum cable length. Increasing the cable length above 300' (90 m) causes an increased measurement error at a rate of approximately +0.06˚ F (+0.03˚ C) per 100' (30 m) at 136˚ F (60˚ C) and +0.012˚ F (+0.006˚ C) at 77˚ F (25˚ C).

2. The chart and graph on the left show the resistance of the sensor. The graph on the right shows the maximum error of an uncalibrated sensor.

°F	°C	kΩ
-40	-40	328.400
-31	-35	237.700
-22	-30	173.900
-13	-25	128.500
-4	-20	95.890
5	-15	72.230
14	-10	54.890
23	-5	42.070
32	0	32.510
41	5	25.310
50	10	19.860
59	15	15.690
68	20	12.490
77	25	10.000
86	30	8.060
95	35	6.536
104	40	5.331
113	45	4.373
122	50	3.606
131	55	2.989
140	60	2.490

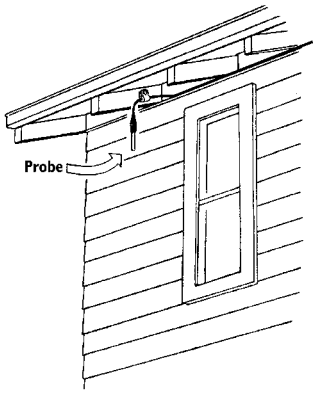


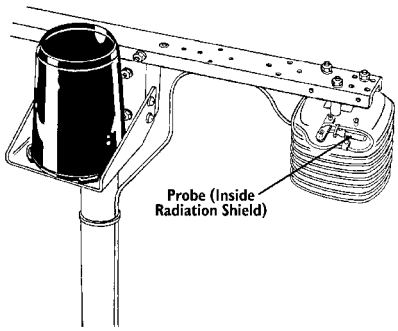


Davis Instruments 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com

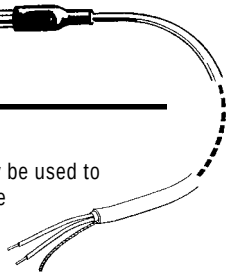
DS7818-00 (Rev. C, 7/14/99)

INSTALLATION OPTIONS (AIR TEMPERATURE)





STAINLESS STEEL TEMPERATURE PROBE, **Industrial**



The Stainless Steel Temperature Probe is designed for more physically-demanding conditions. It may be used to measure the temperature of solids, soils, liquids, or gasses. The sensor is a precision platinum wire thermistor which produces a resistance change proportional to temperature. It is epoxy-encapsulated in a 316 alloy stainless steel body with vinyl strain relief. The 24 AWG shielded cable protects against Electro-magnetic Interference (EMI).

To ensure accurate readings when measuring outdoor air temperature, the Stainless Steel Temperature Probe should be shielded from direct sunlight and other sources of reflected or radiated heat. We recommend the use of the Radiation Shield for this purpose.

SPECIFICATIONS

General

Sensor Type (see Note 2) . . . . . Platinum wire thermisto

Time Constant

In Still Air . . . . . 100 seconds

In Liquid . . . . . 28 seconds

Attached Cable Length . . . . . 16’ (5 m)

Cable Type . . . . . 24 AWG shielded twisted pair cable with UV-resistant jacket, wires stripped and tinned

Recommended Maximum Cable Length (see Note 1)

24 AWG Shielded Cable . . . . . 800’ (242 m)

22 AWG Shielded Cable . . . . . 1,200’ (260 m)

Housing Material . . . . . 316 alloy stainless steel housing with vinyl strain relief

Housing Dimensions . . . . . 0.312" diameter x 2.5" long (8 mm diameter x 64 mm long)

Weight . . . . . 4.5 oz. (128 g)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

Range . . . . . -50° to 140° F (-45° to 60° C)

Accuracy (see Note 2) . . . . . ±1°F (±0.5°C)

Resolution . . . . . 1.0° or 0.1°, selectable, (F or C)

Sample and Display Update Interval . . . . . 16 seconds (max)

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

Temperature . . . . . Average over archive interval

High and Low Temperature . . . . . Maximum and minimum values during archive interval

Input/Output Connections

Black . . . . . Common

White . . . . . Temperature (variable resistance to common)

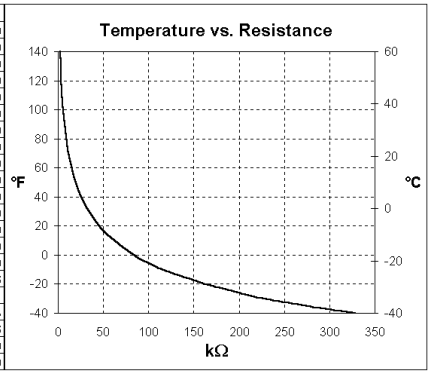
Bare . . . . . Shield Ground

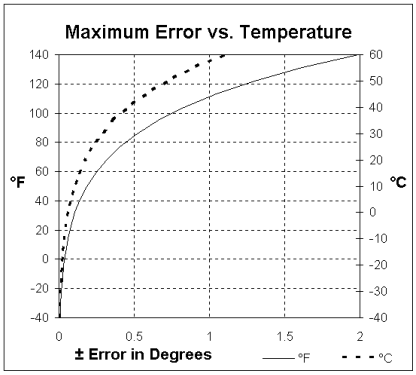
NOTES

1. There is no absolute maximum cable length. Increasing the cable length above the recommended maximum cable length causes an increased measurement error at a rate of approximately +.024˚ F (+.013˚ C) per 100’ (30 m) of 22AWG cable.

2. The chart and graph on the left show the resistance of the sensor. The chart on the right shows the maximum error of an uncalibrated sensor.

°F	°C	kΩ
-40	-40	328.400
-31	-35	237.700
-22	-30	173.900
-13	-25	128.500
-4	-20	95.890
5	-15	72.230
14	-10	54.890
23	-5	42.070
32	0	32.510
41	5	25.310
50	10	19.860
59	15	15.690
68	20	12.490
77	25	10.000
86	30	8.060
95	35	6.536
104	40	5.331
113	45	4.373
122	50	3.606
131	55	2.989
140	60	2.490

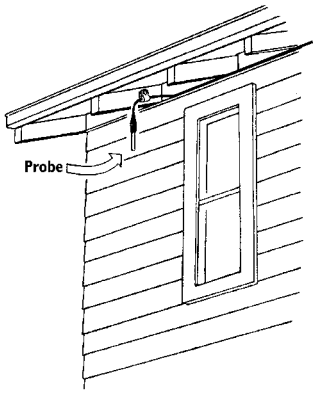


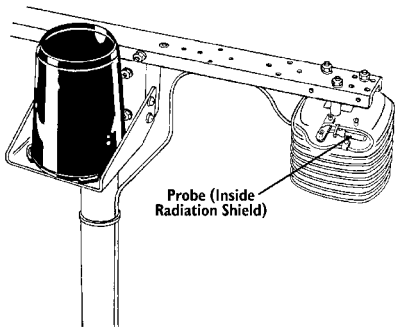


Davis Instruments 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com

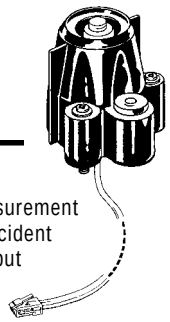
DS7819-00 (Rev. C, 7/14/99)

INSTALLATION OPTIONS





SOLAR RADIATION SENSOR, **Standard**



7821

SENSORS

The Solar Radiation Sensor, or solar pyranometer, measures global radiation, the sum at the point of measurement of both the direct and diffuse components of solar irradiance. The sensor's transducer, which converts incident radiation to electrical current, is a silicon photodiode with wide spectral response. From the sensor's output voltage, the console calculates and displays solar irradiance. It also integrates the irradiance values and displays total incident energy over a period.

The outer shell shields the sensor body from thermal radiation and provides an airflow path for convection cooling of the body, minimizing heating of the sensor interior. It includes a cutoff ring for cosine response, a level indicator, and fins to aid in aligning the sensor with the sun's rays. The space between the shield and the body also provides a run-off path for water, greatly reducing the possibility of rain- or irrigation-water entrapment. The diffuser is welded to the body for a weather-tight seal; it provides an excellent cosine response. The transducer is an hermetically-sealed silicon photodiode; the included amplifier converts the transducer current into a 0 to +3V DC voltage. Spring-loaded mounting screws, in conjunction with the level indicator, enable rapid and accurate levelling of the sensor. Each sensor is calibrated against a secondary standard which is calibrated periodically against an Eppley Precision Spectral Pyranometer in natural daylight.

To ensure maximum readings when used with the Energy or Health EnviroMonitor systems you may want to tilt the sensor towards the sun. The Sensor Tilting Bracket (#7706) permits mounting the sensor at an adjustable angle. All GroWeather systems perform evapotranspiration calculations assuming the sensor is mounted horizontally; do not tilt the sensor when it is used with a GroWeather system.

SPECIFICATIONS

General

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

Sensor Type . . . . . Silicon photodiode

Spectral Range (10% points) . . . . . 400 to 1100 nanometers

Cosine Response

Percent of Reading . . . . . ±3% (0° to ±70° incident angle); ±10% (±70° to ±85° incident angle)

Percent of Full Scale . . . . . ±2% (0° to ±90°)

Attached Cable Length . . . . . 40' (12 m)

Cable Type . . . . . 4-conductor, 26 AWG

Connector . . . . . Modular connector (RJ-11)

Recommended Maximum Cable Length . . . . . 125' (38 m)

Housing Material . . . . . UV-resistant plastic

Dimensions . . . . . 2" x 2.75" x 2.25" (51 mm x 70 mm x 57 mm)

Weight . . . . . 12 oz. (340 g)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

Range

Solar Radiation Intensity . . . . . 0 to 1500 W/m^2

Solar Energy . . . . . 0 to 1999.9 Langleys

Accuracy

Solar Global Radiation Intensity . . . . . ±5%

Solar Energy . . . . . ±5%

Resolution

Solar Radiation Intensity . . . . . 1 W/m^2

Solar Energy . . . . . 0.1 Langleys

Sample and Display Update Interval

Solar Radiation Intensity . . . . . 12 seconds (6 seconds when selected for display)

Solar Energy . . . . . 1 minute

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

Solar Radiation Intensity . . . . . Average over archive interval

Solar Energy . . . . . Sum over archive interval in Langleys; sum over archive interval in $Joules/cm^2$ (range: 0 to 1999.9; resolution: 0.1 J/cm^2) using Energy WeatherLink

Input/Output (These specifications apply to the sensor as a separately-sold item.)

Connections (Diagram on reverse)

Yellow . . . . . Output (0 to +3VDC); 1.67 mV per W/m^2

Red & Green . . . . . Ground

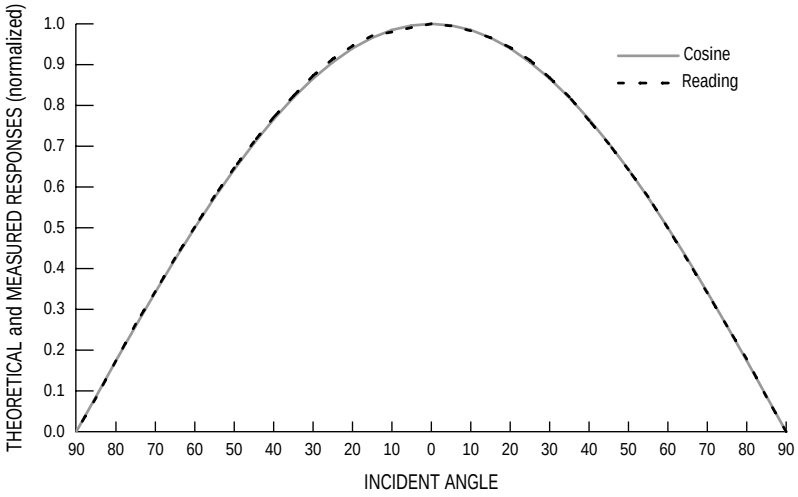
Black . . . . . +5V DC ±10%; 3mA (typical)

Temperature Coefficient . . . . . -0.034% per degree F (- 0.063% per degree C); Reference temperature = 72°F (22°C)

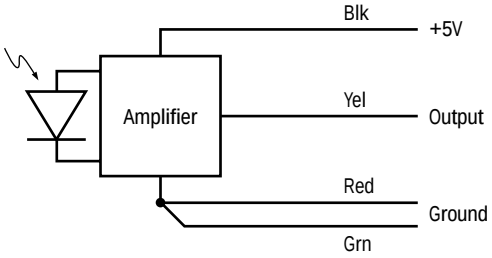
DAVIS Davis Instruments 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com

DS7821-00 (Rev. C, 7/14/99)

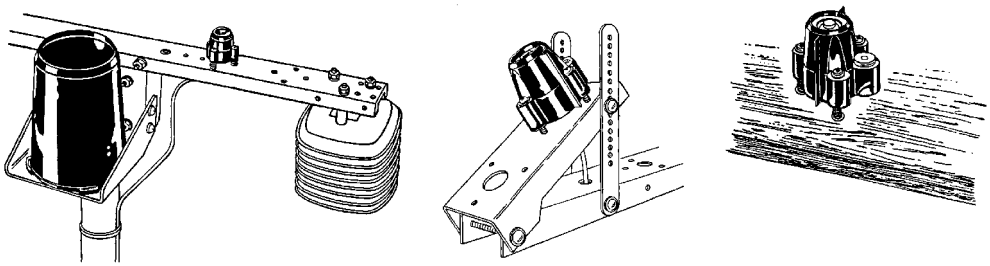
COSINE RESPONSE (TYPICAL)



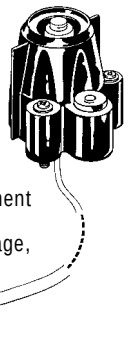
CONNECTIONS



INSTALLATION OPTIONS



SOLAR RADIATION SENSOR, **Industrial**



7823

SENSORS

The Solar Radiation Sensor, or solar pyranometer, measures global radiation, the sum at the point of measurement of both the direct and diffuse components of solar irradiance. The sensor's transducer, which converts incident radiation to electrical current, is a silicon photodiode with wide spectral response. From the sensor's output voltage, the console calculates and displays solar irradiance. It also integrates the irradiance values and displays total incident energy over a period.

The outer shell shields the sensor body from thermal radiation and provides an airflow path for convection cooling of the body, minimizing heating of the sensor interior. It includes a cutoff ring for cosine response, a level indicator, and fins to aid in aligning the sensor with the sun's rays. The space between the shield and the body also provides a run-off path for water, greatly reducing the possibility of rain- or irrigation-water entrapment. The diffuser is welded to the body for a weather-tight seal; it provides excellent cosine response. The transducer is an hermetically-sealed silicon photodiode; the included amplifier converts the transducer current into a 0 to +3V DC voltage. Spring-loaded mounting screws, in conjunction with the level indicator, enable rapid and accurate levelling of the sensor. Each sensor is calibrated against a secondary standard which is calibrated periodically against an Eppley Precision Spectral Pyranometer in natural daylight.

To ensure maximum readings when used with the Energy or Health EnviroMonitor systems you may want to tilt the sensor towards the sun. The Sensor Tilting Bracket provides a simple method for mounting the sensor at an adjustable angle. All GroWeather systems perform evapotranspiration calculations assuming the sensor is mounted horizontally; do not tilt the sensor when using a GroWeather system.

SPECIFICATIONS

General

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

Sensor Type . . . . . Silicon photodiode

Spectral Range (10% points) . . . . . 400 to 1100 nanometers

Cosine Response

Percent of Reading . . . . . ±3% (0° to ±70° incident angle); ±10% (±70° to ±85° incident angle)

Percent of Full Scale . . . . . ±2% (0° to ±90°)

Attached Cable Length . . . . . 16' (5 m)

Cable Type . . . . . 2-twisted pair, 24 AWG shielded cable with UV-resistant jacket, wires stripped and tinned

Recommended Maximum Cable Length . . . . . 200' (61 m)

Housing Material . . . . . UV-resistant plastic

Dimensions . . . . . 2" x 2.75" x 2.25" (51 mm x 70 mm x 57 mm)

Weight . . . . . 9 oz. (255 g)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

Range

Solar Radiation Intensity . . . . . 0 to 1500 W/m^2

Solar Energy . . . . . 0 to 1999.9 Langleys

Accuracy

Solar Global Radiation Intensity . . . . . ±5%

Solar Energy . . . . . ±5%

Resolution

Solar Radiation Intensity . . . . . 1 W/m^2

Solar Energy . . . . . 0.1 Langleys

Sample and Display Update Interval

Solar Radiation Intensity . . . . . 12 seconds (6 seconds when selected for display)

Solar Energy . . . . . 1 minute

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

Solar Radiation Intensity . . . . . Average over archive interval

Solar Energy . . . . . Sum over archive interval in Langleys; sum over archive interval in $Joules/cm^2$ (range: 0 to 1999.9; resolution: 0.1 J/cm^2) using Energy WeatherLink

Input/Output (These specifications apply to the sensor as a separately-sold item.)

Connections (Diagram on reverse)

White . . . . . Output (0 to +3VDC); 1.67 mV per W/m^2

Black (2 wires) . . . . . Ground

Red . . . . . +5V DC ±10%; 3mA (typical)

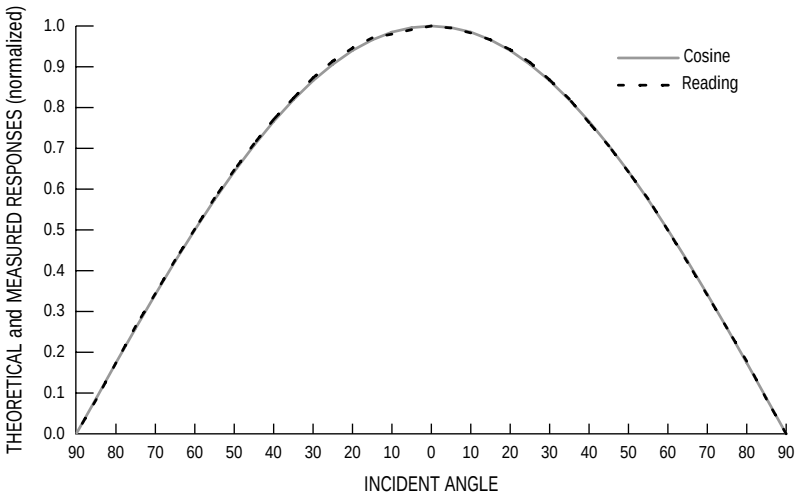
Bare . . . . . Shield Ground

Temperature Coefficient . . . . . -0.034% per degree F (- 0.063% per degree C); Reference temperature = 72°F (22°C)

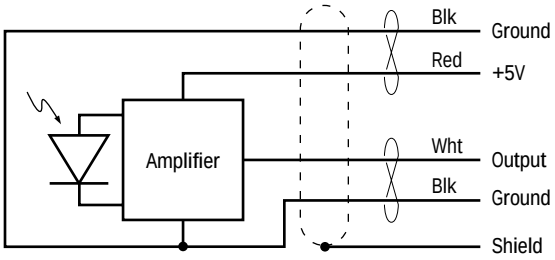
DAVIS **Davis Instruments** 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com

DS7823-00 (Rev. C, 7/14/99)

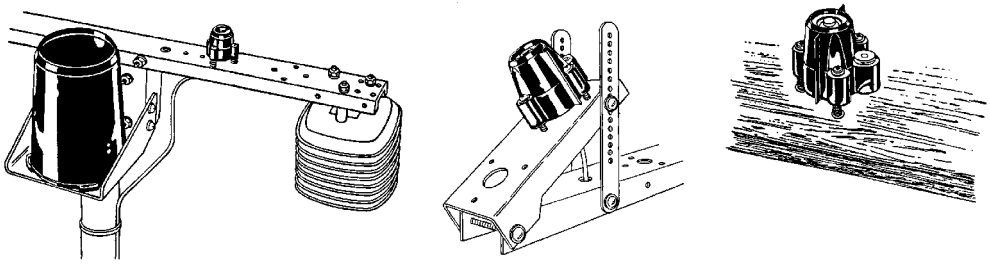
COSINE RESPONSE (TYPICAL)



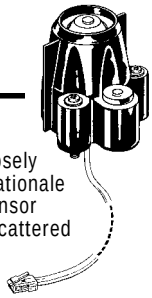
CONNECTIONS



INSTALLATION OPTIONS



UV SENSOR, **Standard**



7841

SENSORS

The UV Sensor measures the sunburning portion of the UV spectrum. Its spectral response matches very closely the Erythema Action Spectrum, defined by McKinlay and Diffey (1987) and adopted by the Commission Internationale de l'Eclairage (C.I.E.) as the standard representation of the human skin's sensitivity to UV radiation. The sensor measures global solar UV irradiance, the sum of the components of solar UV transmitted directly and those scattered by gases and particles in the atmosphere. Scattered UV is a major portion of global irradiance.

The transducer is a semiconductor photodiode which responds only to radiation in the region of interest. The diffuser provides an excellent cosine response. With multiple hard-oxide coatings, the interference filter provides the Erythema Action spectral response. It is stable in the presence of heat and humidity. The outer shell shields the sensor from thermal radiation and provides a path for convection cooling of the body, minimizing heating of the sensor interior. It provides a cutoff ring for cosine response, a level indicator, and fins to aid in aligning the sensor with the sun's rays. Spring-loaded mounting screws, in conjunction with the level indicator, enable rapid and accurate levelling of the sensor. Each sensor is calibrated against a secondary standard which is calibrated periodically against a Yankee Environmental Systems' Ultraviolet Pyranometer, model UVB-1, in natural daylight.

For maximum sensor response, you may want to tilt the sensor towards the sun. The Sensor Tilting Bracket provides a simple method for mounting the sensor at an angle.

SPECIFICATIONS

General

Operating Temperature	-40° to 150° F (-40° to 65° C)
Sensor Type	Semiconductor photodiode
Spectral Response	280 to 360 nm (EAS)
Cosine Response	±4% of reading (0° to 65° incident angle); ±9% of reading (65° to 85° incident angle)
Attached Cable Length	40' (12 m)
Cable Type	6-conductor, 26 AWG
Connector	Modular connector (RJ-11)
Recommended Maximum Cable Length	125' (38 m)
Housing Material	UV-resistant plastic
Dimensions	2" x 2.75" x 2.25" (51 mm x 70 mm x 57 mm)
Weight	12 oz. (340 g)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

Range

UV Exposure Index	0 to 16
UV Dose Rate	0 to 7 MEDs/hour
UV Dose	0 to 999.9 MEDs

Accuracy

UV Exposure Index	±8%
UV Dose Rate	±8%
UV Dose	±8%
Temperature Coefficient (see Note 1)	±0.02% per degree F (±0.036% per degree C); Reference temperature = 72°F (22°C)

Resolution

UV Exposure Index	0.1
UV Dose Rate	0.1 MED/hour
UV Dose	0.1 MED
Sample and Display Update Interval	16 seconds (max)

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

UV Exposure Index	Average over archive interval
UV Dose Rate	Average over archive interval
UV Dose	Sum over archive interval

Input/Output (These specifications apply to the sensor as a separately-sold item.)

Connections (Diagram on reverse)

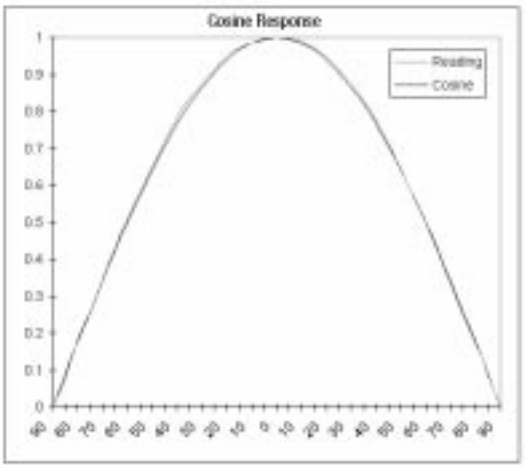
Green	Output (0 to 2.5VDC); 0.364 Volt per MED/hour
Black & Red	Ground
White	+5V ±10%, 3.4 mA
Temperature Coefficient (see Note 1)	±0.12% per degree F (±0.22% per degree C); Reference temperature = 72°F (22°C)

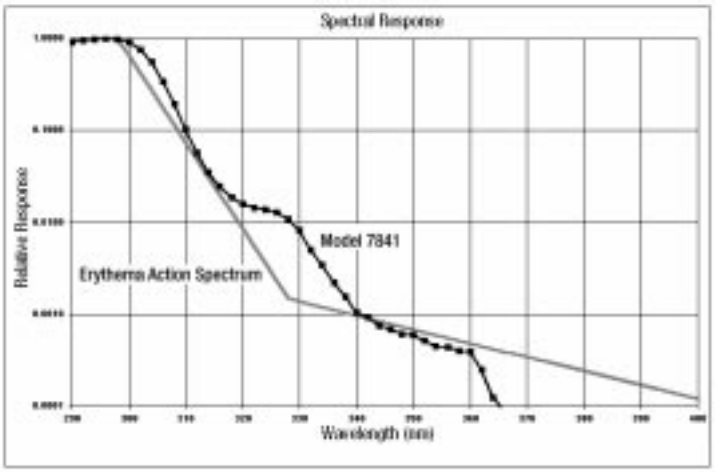
DAVIS **Davis Instruments** 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com
DS7841-00 (Rev. C, 7/14/99)

NOTES

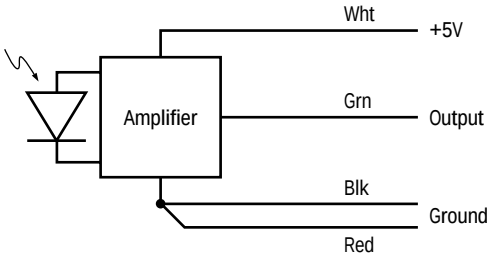
1. Temperature compensation is automatically performed in all Health EnviroMonitor systems which include an external temperature sensor.

COSINE AND SPECTRAL RESPONSES

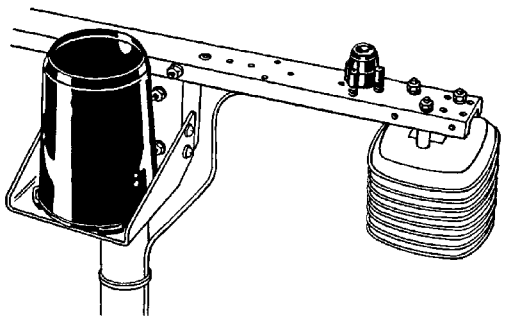


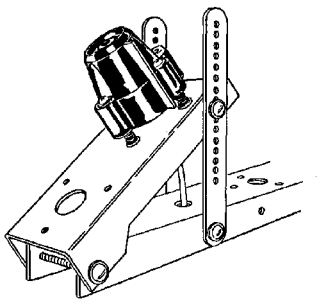


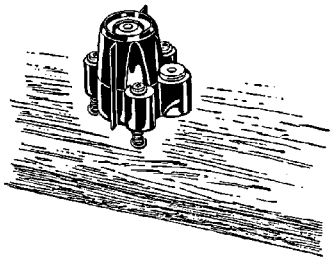
CONNECTIONS



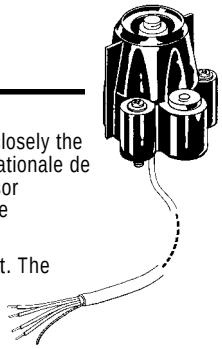
INSTALLATION OPTIONS







UV SENSOR, **Industrial**



7843

SENSORS

The UV Sensor measures the sunburning portion of the UV spectrum. Its spectral response matches very closely the Erythema Action Spectrum, defined by McKinlay and Diffey (1987) and adopted by the Commission Internationale de l'Eclairage (C.I.E.) as the standard representation of the human skin's sensitivity to UV radiation. The sensor measures global solar UV irradiance, the sum of the components of solar UV transmitted directly and those scattered by gases and particles in the atmosphere. Scattered UV is a major portion of global irradiance.

The transducer is a semiconductor photodiode which responds only to radiation in the region of interest. The diffuser provides an excellent cosine response. With multiple hard-oxide coatings, the interference filter provides the Erythema Action spectral response. It is stable in the presence of heat and humidity. The outer shell shields the sensor from thermal radiation and provides a path for convection cooling of the body, minimizing heating of the sensor interior. It provides a cutoff ring for cosine response, a level indicator, and fins to aid in aligning the sensor with the sun's rays. Spring-loaded mounting screws, in conjunction with the level indicator, enable rapid and accurate levelling of the sensor. Each sensor is calibrated against a secondary standard which is calibrated periodically against a Yankee Environmental Systems' Ultrviolet Pyranometer, model UVB-1, in natural daylight.

For maximum sensor response, you may want to tilt the sensor towards the sun. The Sensor Tilting Bracket provides a simple method for mounting the sensor at an angle.

SPECIFICATIONS

General

- **Operating Temperature** . . . . . -40° to 150° F (-40° to 65° C)
- **Sensor Type** . . . . . Semiconductor photodiode
- **Spectral Response** . . . . . 280 to 360 nm (EAS)
- **Cosine Response** . . . . . ±4% of reading (0° to 65° incident angle); ±9% of reading (65° to 85° incident angle)
- **Time Constant** . . . . . 5 seconds
- **Attached Cable Length** . . . . . 16' (5 m)
- **Cable Type** . . . . . 2-twisted pair, 24 AWG shielded cable with UV-resistant jacket, wires stripped and tinned
- **Recommended Maximum Cable Length** . . . . . 200' (61 m)
- **Housing Material** . . . . . UV-resistant plastic
- **Dimensions** . . . . . 2" x 2.75" x 2.25" (51 mm x 70 mm x 57 mm)
- **Weight** . . . . . 9 oz. (255 g)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

Range

- UV Exposure Index . . . . . 0 to 16
- UV Dose Rate . . . . . 0 to 7 MEDs/hour
- UV Dose . . . . . 0 to 999.9 MEDs

Accuracy

- UV Exposure Index . . . . . ±8%
- UV Dose Rate . . . . . ±8%
- UV Dose . . . . . ±8%

- **Temperature Coefficient** (see Note 1) . . . . . ±0.02% per degree F (±0.036% per degree C); Reference temperature = 72°F (22°C)

Resolution

- UV Exposure Index 0.1
- UV Dose Rate . . . . . 0.1 MED/hour
- UV Dose . . . . . 0.1 MED

- **Sample and Display Update Interval** . . . . . 16 seconds (max)

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

- **UV Exposure Index** . . . . . Average over archive interval
- **UV Dose Rate** . . . . . Average over archive interval
- **UV Dose** . . . . . Sum over archive interval

Input/Output (These specifications apply to the sensor as a separately-sold item.)

Connections (Diagram on reverse)

- White . . . . . Output (0 to 2.5VDC); 0.364 Volt per MED/hour
- Black (2 wires) . . . . . Ground
- Red . . . . . +5V ±10%, 3.4 mA
- Bare . . . . . Shield Ground

- **Temperature Coefficient** (see Note 1) . . . . . ±0.12% per °F (±0.22% per degree C); Reference temperature = 72°F (22°C)

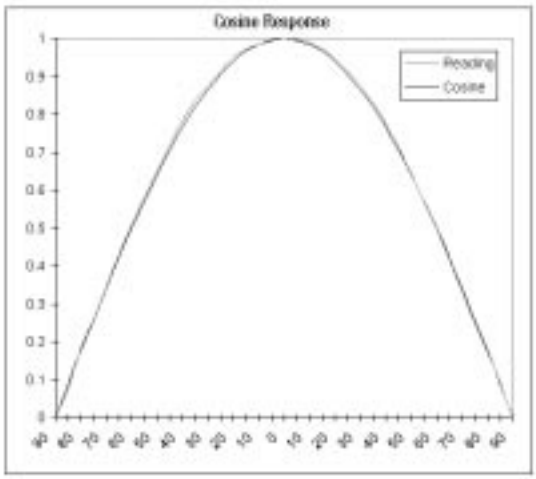
DAVIS **Davis Instruments** 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com

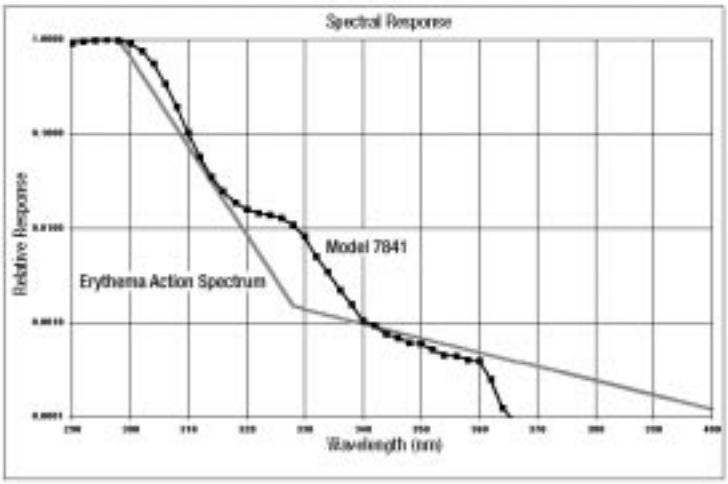
DS7843-00 (Rev. C, 7/14/99)

NOTES

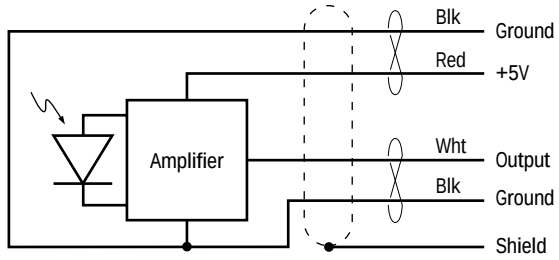
1. Temperature compensation is automatically performed in all Health EnviroMonitor systems which include an external temperature sensor.

COSINE AND SPECTRAL RESPONSES

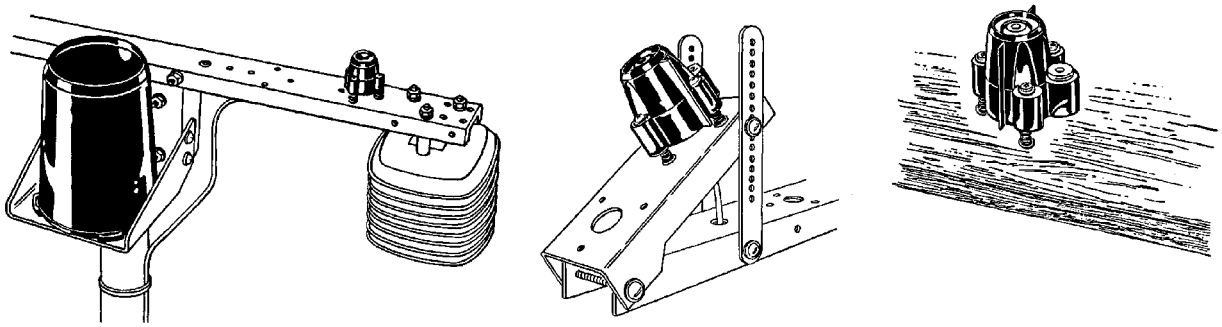




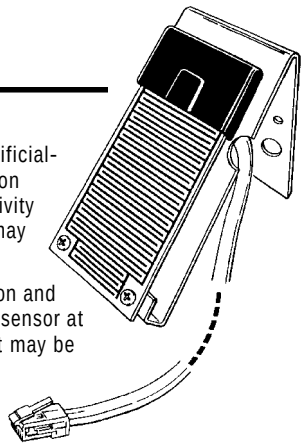
CONNECTIONS



INSTALLATION OPTIONS



LEAF WETNESS SENSOR, **Standard**



The Leaf Wetness sensor detects the presence of surface moisture. The sensor is an artificial-leaf electrical-resistance type. It consists of a sensing grid, low-voltage bi-polar excitation circuit, and conductivity-sensing circuit. The GroWeather console measures the conductivity across the grid and displays the result as a moisture level, scaled from 0 to 15. The user may select the threshold level at and above which moisture-hour totals are accumulated.

The sensing grid is a gold-plated etched circuit on an epoxy-glass substrate; the excitation and sense circuits are encapsulated in black epoxy. The included mounting bracket holds the sensor at a 45° angle to simulate a typical leaf position and to permit runoff of excess moisture; it may be mounted on a vertical post, pipe, or stake, or on the Sensor Mounting Arm.

Two Leaf Wetness sensors may be connected in parallel by splicing their cables together. When this is done, the reported moisture level will be twice as high as that of an individual sensor, and complete wetness will be reported whenever either sensor is wet.

SPECIFICATIONS

General

- **Sensor Type** . . . . . Artificial leaf electrical resistance
- **Excitation** . . . . . Bipolar (5V nominal) built-in
- **Time Constant** . . . . . 2 seconds
- **Attached Cable Length** . . . . . 40’ (12 m)
- **Cable Type** . . . . . 6-conductor, 26 AWG
- **Connector** . . . . . Modular connector (RJ-11)
- **Recommended Maximum Cable Length** (see Note 1) . . . . . 200’ (61 m)
- **Material**
  - Substrate . . . . . Glass-reinforced, ceramic-filled laminate
  - Grid . . . . . 1 oz. copper, nickel, and 50 µin gold plate
  - Mounting Bracket . . . . . White powder-coated aluminum
- **Dimensions**
  - Leaf Wetness Sensor . . . . . 2" high x 1.5" wide x 0.25" thick (51 mm x 38 mm x 6 mm)
  - Sensor Area . . . . . 4.4 in^2 (28 cm^2)
- **Weight** . . . . . 11 oz. (312 g)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

- **Range** . . . . . 0 to 15
- **Resolution** 1
- **Dry/Wet Threshold** . . . . . User-Selectable
- **Sample and Display Update Interval** . . . . . 16 seconds (max)

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

- **Wetness Value** . . . . . Value at end of archive interval

Input/Output (These specifications apply to the sensor as a separately-sold item.)

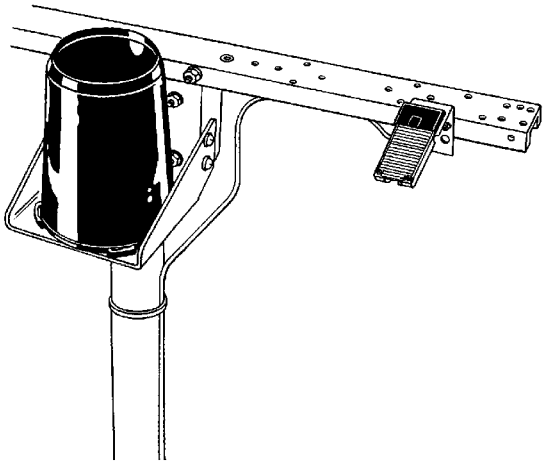
- **Supply Voltage and Current** . . . . . 1mA (typical) at +5VDC ±10%
- **Output** . . . . . Variable resistance:>1MOhm (dry) to <130KOhm (wet)
- **Connections**
  - Green & Yellow . . . . . Output
  - Black & Red . . . . . Ground
  - White . . . . . +5VDC
  - Blue . . . . . N/C

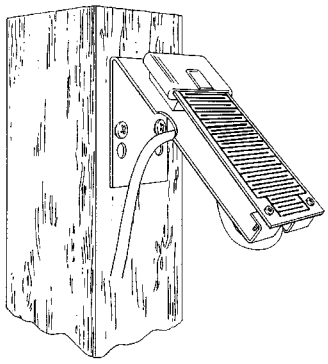
NOTES

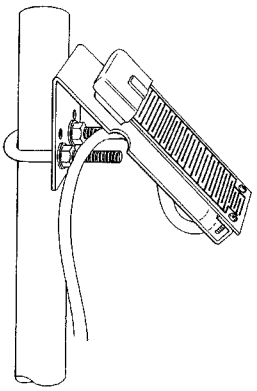
1. Increasing the cable length above the recommended maximum cable length causes measurement error in the form of lower moisture readings.

Davis Instruments 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com
DS7846-00 (Rev. B, 7/14/99)

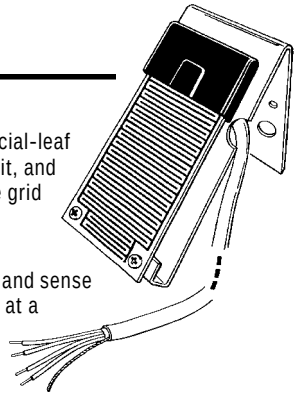
INSTALLATION OPTIONS







LEAF WETNESS SENSOR, **Industrial**



The Leaf Wetness sensor detects the presence of surface moisture. The sensor is an artificial-leaf electrical-resistance type. It consists of a sensing grid, low-voltage bi-polar excitation circuit, and conductivity-sensing circuit. The GroWeather console measures the conductivity across the grid and displays the result as a moisture level, scaled from 0 to 15. The user may select the threshold level at and above which moisture-hour totals are accumulated.

The sensing grid is a gold-plated etched circuit on an epoxy-glass substrate; the excitation and sense circuits are encapsulated in black epoxy. The included mounting bracket holds the sensor at a 45° angle to simulate a typical leaf position and to permit runoff of excess moisture; it may be mounted on a vertical post, pipe, or stake, or on the Sensor Mounting Arm. The 24 AWG shielded cable protects against Electro-magnetic Interference (EMI).

Two Leaf Wetness sensors may be connected in parallel at the Sensor Interface Module. When this is done, the reported moisture level will be twice as high as that of an individual sensor, and complete wetness will be reported whenever either sensor is wet.

SPECIFICATIONS

General

- **Sensor Type** . . . Artificial leaf electrical resistance
- **Excitation** . . . Bipolar (5V nominal) built-in
- **Time Constant** (see Note 1) . . . 2 seconds
- **Attached Cable Length** . . . 16' (5 m)
- **Cable Type** . . . 2-twisted pair, 24 AWG shielded cable with UV-resistant jacket, wires stripped and tinned
- **Recommended Maximum Cable Length** (see Note 1)
  - 24 AWG Cable (3-conductor) . . . 300' (91 m)
  - 22 AWG 2-Twisted Pair Cable . . . 640' (194 m)
  - 18 AWG Cable (3-conductor) . . . 720' (218 m)
- **Material**
  - Substrate . . . Glass-reinforced, ceramic-filled laminate
  - Grid . . . 1 oz. copper, nickel, and 50 µin gold plate
  - Mounting Bracket . . . White powder-coated aluminum
- **Dimensions**
  - Leaf Wetness Sensor . . . 2" high x 1.5" wide x 0.25" thick (51 mm x 38 mm x 6 mm)
  - Sensor Area . . . 4.4 in^2 (28 cm^2)
- **Weight** . . . 8 oz. (227 g)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

- **Range** . . . 0 to 15
- **Resolution** . . . 1
- **Dry/Wet Threshold** . . . User-selectable
- **Sample and Display Update Interval** . . . 16 seconds (max)

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

- **Wetness Value** . . . Value at end of archive interval

Input/Output (These specifications apply to the sensor as a separately-sold item.)

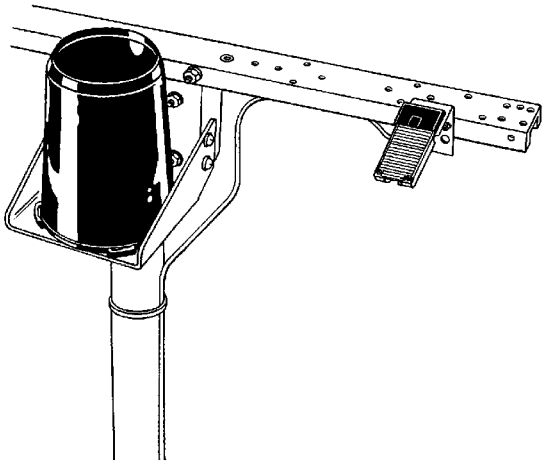
- **Supply Voltage and Current** . . . 1mA (typical) at +5VDC ±10%
- **Output** . . . Variable resistance:>1MOhm (dry) to <130KOhm (wet)
- **Connections**
  - White . . . Output
  - Red . . . +5V
  - Black (2 wires) . . . Ground
  - Bare . . . Shield Ground

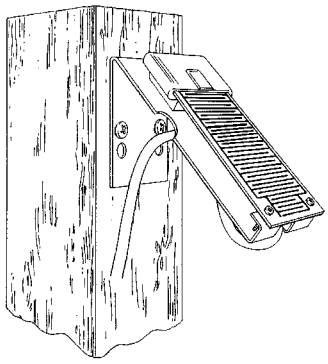
NOTES

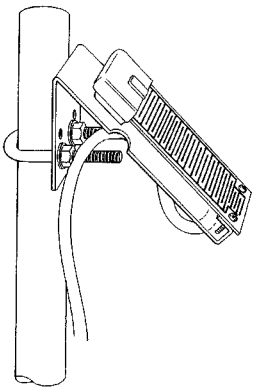
1. Increasing the cable length above the recommended maximum cable length causes measurement error in the form of lower moisture readings.

Davis Instruments 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com
DS7848-00 (Rev. B, 7/14/99)

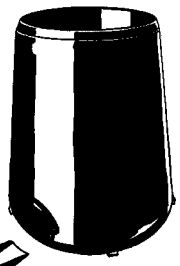
INSTALLATION OPTIONS







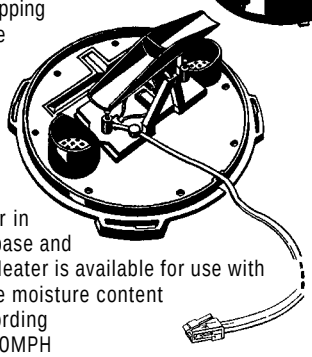
RAIN COLLECTOR, **0.01" (or 0.2 mm) Increments, Standard**



7852(M)

SENSORS

The Rain Collector is designed to meet the guidelines of the World Meteorological Organization. Rain enters the collector cone, passes through a debris-filtering screen, and collects in one chamber of the tipping bucket. The bucket tips when it has collected an amount of water equal to the increment in which the collector measures (0.01" or 0.2 mm). As the bucket tips, it causes a switch closure and brings the second tipping bucket chamber into position. The rain water drains out through the screened drains in the base of the collector.



The collector is designed for years of accurate, trouble-free service. The body and base of the collector are constructed of tough, UV resistant plastic; the tipping bucket pivots on bearings that minimize friction and wear. Stainless steel adjustment screws under each chamber of the tipping bucket allow you to fine-tune the calibration of the Rain Collector.

Two types of collector are available; one measures in 0.01" increments and the other in 0.2 mm increments. Both rain collectors come with mounting holes pre-drilled in the base and a built-in leveling trough to aid you in installing the rain collector. The Rain Collector Heater is available for use with either of the Rain Collector units. This heater allows the Rain Collector to measure the moisture content of snowfall and protects the internal components from freezing rain. If mounted according to instructions, the Rain Collector is wind tunnel tested to be stable in winds up to 140MPH (224 Km/Hr).

SPECIFICATIONS

General

Sensor Type	Tipping bucket with magnetic reed switch
Output	Contact closure
Attached Cable Length	40' (12 m)
Cable Type	4-conductor, 26 AWG
Connector	Modular connector (RJ-11)
Recommended Maximum Cable Length	900' (270 m)
Housing Material	UV-stabilized ABS plastic
Dimensions	
Rain Collector	8.75" diameter x 9.5" high (16.5 cm diameter x 24 cm high)
Collection Area	31 in^2 (200 cm^2)
Weight	2 lbs. 3 oz. (1 kg)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

Weather Monitor/Wizard Range	
Daily Rainfall	0.00" to 99.99" (0.0 mm to 999.8 mm)
Total Rainfall	0.00" to 99.99" (0.0 mm to 9999 mm)
GroWeather/EnviroMonitor Range	
Daily Rainfall	0.00" to 40.95" (0.0 mm to 819 mm)
Total Rainfall	0.00" to 99.99" (0.0 mm to 9999 mm)
Rate of Rainfall	0.00" to 72.0" per hour (0 to 999 mm per hour)
Accuracy	
Rainfall	±4%, ±1 rainfall count between 0.01" and 2.00" per hour (0.2 mm and 50.0 mm per hour); ±5%, ±1 rainfall count between 2.00" and 4.00" per hour (50.0 mm and 100.0 mm per hour)
Resolution	0.01" (0.2 mm)
Sample and Display Update Interval	16 seconds (max)

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

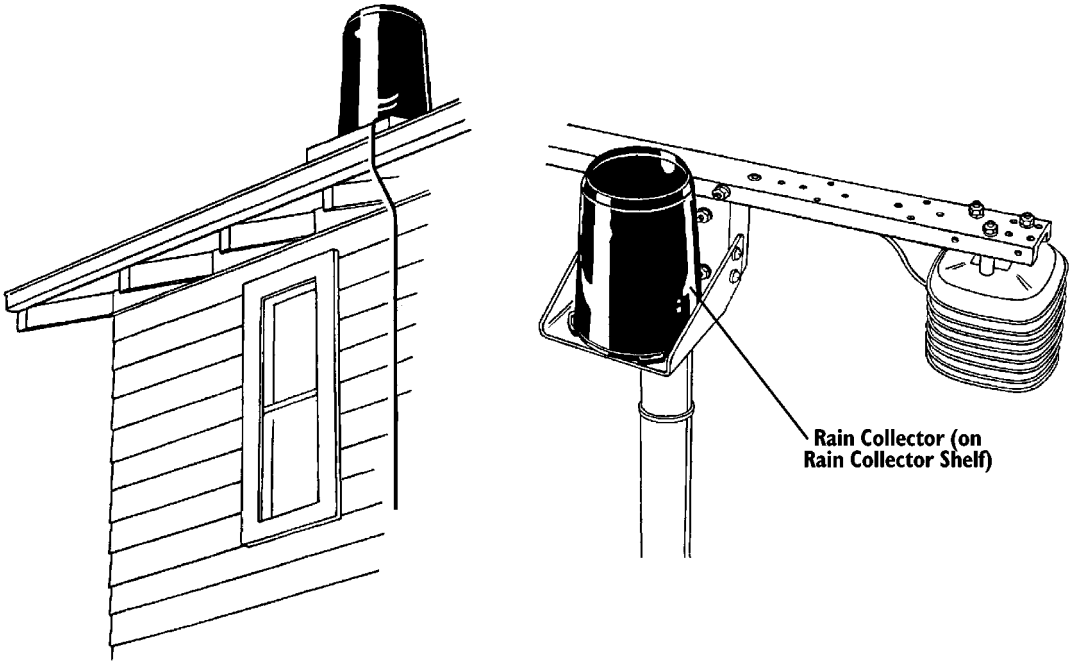
Daily Rainfall	Total during archive interval
Total Rainfall	Total during archive interval
Rate of Rainfall	Maximum value during archive interval (GroWeatherLink, Energy WeatherLink, and Health WeatherLink)

Input/Output Connections

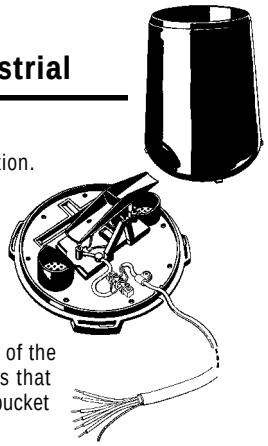
Black & Red	Switch terminal
Green & Yellow	Switch terminal

Davis Instruments 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com
DS7852-00 (Rev. B, 7/14/99)

INSTALLATION OPTIONS



RAIN COLLECTOR, **0.01" (or 0.2 mm) Increments, Industrial**



7856(M)

SENSORS

The Rain Collector is designed to meet the guidelines of the World Meteorological Organization. Rain enters the collector cone, passes through a debris-filtering screen, and collects in one chamber of the tipping bucket. The bucket tips when it has collected an amount of water equal to the increment in which the collector measures. As the bucket tips, it causes a switch closure and brings the second tipping bucket chamber into position. The rain water drains out through the screened drains in the base of the collector. The 24 AWG shielded cable protects against Electro-magnetic Interference (EMI).

The collector is designed for many years of accurate, trouble-free service. The body and base of the collector are constructed of tough, UV resistant plastic; the tipping bucket pivots on bearings that minimize friction and wear. Stainless steel adjustment screws under each chamber of the tipping bucket allow you to fine-tune the calibration of the Rain Collector.

Two types of collector are available; one measures in 0.01" increments and the other in 0.2 mm increments. Both rain collectors come with mounting holes pre-drilled in the base and a built-in bubble level to aid you in installing the rain collector. An optional heater accessory, the Rain Collector Heater, is available for use with either of the Rain Collector units. This heater allows the Rain Collector to measure the moisture content of snowfall and protects the internal components from freezing rain. If mounted according to included instructions, the Rain Collector is wind tunnel tested to be stable in winds up to 140MPH (224 Km/Hr).

SPECIFICATIONS

General

Sensor Type	Tipping bucket with magnetic reed switch
Output	Contact closure
Attached Cable Length	16' (5 m)
Cable Type	4-conductor, 24 AWG shielded cable with UV-resistant jacket, wires stripped and tinned
Recommended Maximum Cable Length	900' (270 m)
Housing Material	UV-stabilized ABS plastic
Dimensions	
Rain Collector	8.75" diameter x 9.5" high (16.5 cm diameter x 24 cm high)
Collection Area	31 in^2 (200 cm^2)
Weight	2 lbs. 3 oz. (1 kg)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

Range	
Daily Rainfall	0.00" to 40.95" (0.0 mm to 819 mm)
Total Rainfall	0.00" to 99.99" (0.0 mm to 9999 mm)
Rate of Rainfall	0.00" to 72.0" per hour (0 to 999 mm per hour)
Accuracy	
Rainfall	±4%, ±1 rainfall count between 0.01" and 2.00" per hour (0.2 mm and 50.0 mm per hour); ±5%, ±1 rainfall count between 2.00" and 4.00" per hour (50.0 mm and 100.0 mm per hour)
Resolution	0.01" (0.2 mm)
Sample and Display Update Interval	16 seconds (max)

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

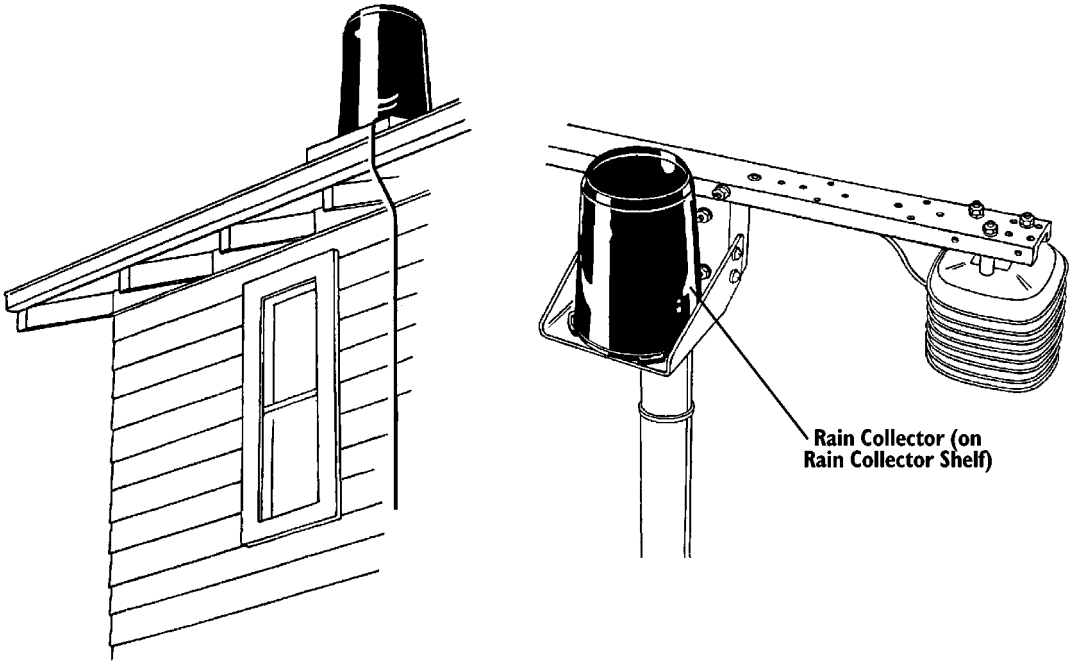
Daily Rainfall	Total during archive interval
Total Rainfall	Total during archive interval
Rate of Rainfall	Maximum value during archive interval (GroWeatherLink, Energy WeatherLink, and Health WeatherLink)

Input/Output Connections

Black	Switch terminal
White	Switch terminal
Bare	Shield ground

Davis Instruments 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com
DS7856-00 (Rev. B, 7/14/99)

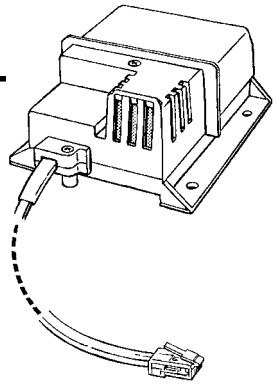
INSTALLATION OPTIONS



EXTERNAL TEMPERATURE/HUMIDITY SENSOR

7859

SENSORS



Standard

The External Temperature/Humidity Sensor measures relative humidity and air temperature. The sensor enclosure protects the sensor from mechanical damage, and the membrane filter protects the sensor elements from dust, dirt, and water spray.

The housing includes a cable strain relief. The humidity sensor is a thin film capacitor element. A dielectric polymer layer absorbs water molecules from the air through a thin metal electrode, which causes a change in capacitance proportional to relative humidity. The temperature sensor is a precision platinum wire thermistor which produces a resistance change proportional to temperature. The sensors are mounted next to one another within the sensor housing to ensure a close correlation between relative humidity and temperature readings. The relative humidity and temperature readings are used to calculate dew point.

To ensure accurate readings when measuring outdoor air temperature and humidity, one should shield the External Temperature/Humidity Sensor from direct sunlight and other sources of reflected or radiated heat. We recommend the use of a Davis Radiation Shield (#7714) or the equivalent for this purpose.

SPECIFICATIONS

General

Sensor Type

Temperature . . . . . Platinum wire thermistor
Relative Humidity . . . . . Film capacitor element

Attached Cable Length . . . . . 40' (12 m)

Cable Type . . . . . 6-conductor, 26 AWG

Connector . . . . . Modular connector (RJ-11)

Recommended Maximum Cable Length . . . . . 200' (60 m) Sensor to SIM, or Sensor to Console w/o SIM

Housing Material . . . . . White ABS with UV Inhibitor added

Dimensions . . . . . 3.5" wide x 3.25" long x 1.5" high (89 mm x 83 mm x 38 mm)

Weight . . . . . 15 oz. (425 g)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

Range

Temperature . . . . . -50° to 140° F (-45° to 60° C)
Relative Humidity 0-100%
Dew Point . . . . . -99° to 140° F (-73° to 60° C)

Accuracy

Temperature . . . . . ±1°F (±0.5°C)
Relative Humidity . . . . . ±3%
Dew Point . . . . . ±4°F (±2°C)

Resolution

Temperature . . . . . 1.0° or 0.1°, selectable, F or C
Relative Humidity 1%
Dew Point . . . . . 1°F (1°C)

Sample and Display Update Interval

Temperature . . . . . 16 seconds (max)
Relative Humidity . . . . . 16 seconds (max)

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

Temperature . . . . . Average during archive interval

High and Low Temperature . . . . . Maximum and minimum values during archive interval

Relative Humidity . . . . . Value at end of archive interval

High and Low Humidity . . . . . Maximum and minimum values during archive interval

Dew Point . . . . . Calculated using temperature and humidity data for each archive interval

DAVIS Davis Instruments 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com

DS7859-00 (Rev. C, 7/14/99)

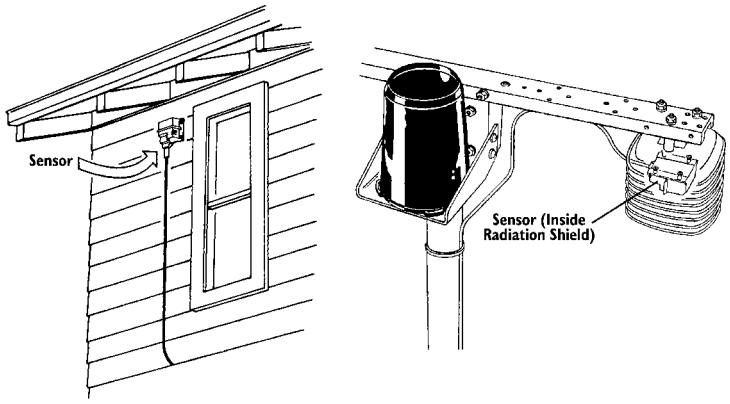
Input/Output Connections

This sensor uses a proprietary signal format and will work only with Davis weather stations. We do not support the use of this sensor in 3rd party installations.

Yellow	Temperature
Green	Relative Humidity Output
Blue	Control
White	+2.5VDC
Black & Red	Ground

INSTALLATION OPTIONS

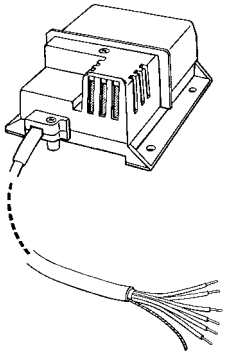
For greater accuracy when installing the sensor against a wall (as shown on left), use a wall that faces away from the equator.



EXTERNAL TEMPERATURE/HUMIDITY SENSOR

7860

SENSORS



Industrial

The External Temperature/Humidity Sensor measures relative humidity and air temperature. The sensor enclosure protects the sensor from mechanical damage, and the membrane filter protects the sensor elements from dust, dirt, and water spray. The housing includes a cable strain relief. The 24 AWG shielded cable protects against Electro-magnetic Interference (EMI).

The humidity sensor is a thin film capacitor element. A dielectric polymer layer absorbs water molecules from the air through a thin metal electrode, which causes a change in capacitance proportional to relative humidity. The temperature sensor is a precision platinum wire thermistor. The thermistor produces a resistance change proportional to temperature. The sensors are mounted next to one another within the sensor housing to ensure a close correlation between relative humidity and temperature readings. The relative humidity and temperature readings are used to calculate dew point.

To ensure accurate readings when measuring outdoor air temperature and humidity, the External Temperature/Humidity Sensor should be shielded from direct sunlight and other sources of reflected or radiated heat. We recommend the use of the Radiation Shield for this purpose.

SPECIFICATIONS

General

Sensor Type

Temperature . . . . . Platinum wire thermistor
Relative Humidity . . . . . Film capacitor element

Attached Cable Length . . . . . 16' (5 m)

Cable Type . . . . . 6-conductor, 24 AWG shielded cable with UV-resistant jacket, wires stripped and tinned

Recommended Maximum Cable Length

24 AWG Shielded Cable . . . . . 220' (67 m)
22 AWG Shielded Cable . . . . . 350' (106 m)

Housing Material . . . . . White ABS with UV Inhibitor added

Dimensions . . . . . 3.5" wide x 3.25" long x 1.5" high (89 mm x 83 mm x 38 mm)

Weight . . . . . 13 oz. (369 g)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

Range

Temperature . . . . . -50° to 140° F (-45° to 60° C)
Relative Humidity 0-100%
Dew Point . . . . . -99° to 140° F (-73° to 60° C)

Accuracy

Temperature . . . . . ±1°F (±0.5°C)
Relative Humidity . . . . . ±3%
Dew Point . . . . . ±4°F (±2°C)

Resolution

Temperature . . . . . 1.0° or 0.1°, selectable, F or C
Relative Humidity 1%
Dew Point . . . . . 1°F (1°C)

Sample and Display Update Interval

Temperature . . . . . 16 seconds (max)
Relative Humidity . . . . . 16 seconds (max)

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

Temperature . . . . . Average during archive interval

High and Low Temperature . . . . . Maximum and minimum values during archive interval

Relative Humidity . . . . . Value at end of archive interval

High and Low Humidity . . . . . Maximum and minimum values during archive interval

Dew Point . . . . . Calculated using temperature and humidity data for each archive interval

DAVIS Davis Instruments 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com
DS7860-00 (Rev. C, 7/14/99)

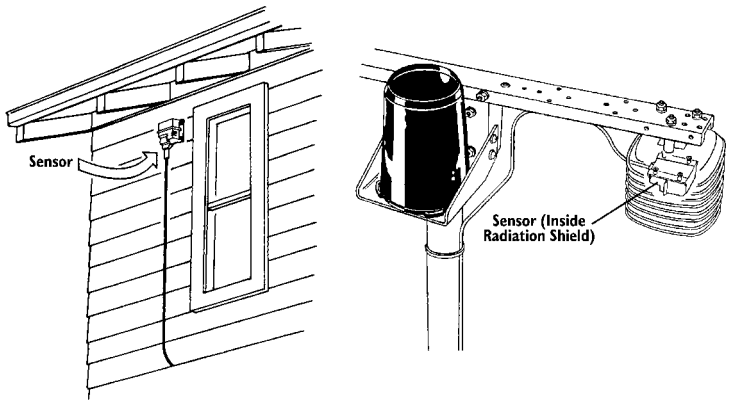
Input/Output Connections

This sensor uses a proprietary signal format and will work only with Davis weather stations. We do not support the use of this sensor in 3rd party installations.

White	Temperature
Green	Relative Humidity
Blue	Control
Red	+2.5VDC
Black & Brown	Ground
Bare	Shield Ground

INSTALLATION OPTIONS

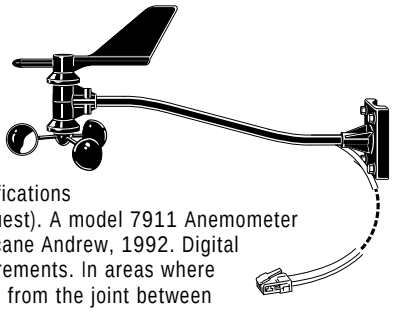
For greater accuracy when installing the sensor against a wall (as shown on left), use a wall that faces away from the equator.



ANEMOMETER, **Standard**

7911

SENSORS



The Anemometer includes both wind speed and wind direction sensors. Rugged components stand up to hurricane-force winds, yet are sensitive to a light breeze. Includes sealed stainless-steel bearings for long life. The range and accuracy specifications of this unit have been verified in wind-tunnel tests (information available upon request). A model 7911 Anemometer reported wind speeds of 175 miles per hour before its tower collapsed during hurricane Andrew, 1992. Digital filtering, with time constant as specified below, is applied to wind direction measurements. In areas where icing of the anemometer is a problem, use Anemometer Drip Rings to deflect water from the joint between moving parts.

SPECIFICATIONS

General

Sensor Type

Wind Speed . . . . . Wind cups and magnetic switch

Wind Direction . . . . . Wind vane and potentiometer

Attached Cable Length . . . . . 40' (12 m)

Cable Type . . . . . 4-conductor, 26 AWG

Connector . . . . . Modular connector (RJ-11)

Recommended Maximum Cable Length

Wizard and Monitor . . . . . 140' (42 m) Sensor to Console

GroWeather and EnviroMonitor . . . . . 250' (75 m) from Sensor to SIM + 250' (75 m) from SIM to Console

Material

Wind Vane and Control Head . . . . . UV-resistant ABS

Wind Cups . . . . . Polycarbonate

Anemometer Arm . . . . . Black-anodized aluminum

Dimensions . . . . . 18.5" long x 7.5" high x 4.75" wide (89 mm x 83 mm x 38 mm)

Weight . . . . . 2 lbs. 15 oz. (1.332 kg)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

Range

Wind Speed (See Note 1) . . . . . 0 to 175 mph (150 knots, 78 m/s, 280 km/hr)

Wind Direction . . . . . 0° to 360° or 16 compass points

Wind Run . . . . . 0 to 1999.9 miles (1999.9 km)

Accuracy

Wind Speed . . . . . ±5%

Wind Direction . . . . . ±7°

Wind Run . . . . . ±5%

Resolution

Wind Speed . . . . . 1 mph (1 knot, 0.1 m/s, 1 km/hr)

Wind Direction . . . . . 1° (0° to 355°), 22.5° between compass points

Wind Run . . . . . 0.1 m (0.1 km)

Measurement Timing

Wind Speed Sample Period . . . . . 2.25 seconds

Wind Speed Sample and Display Interval . . . . . 2.25 seconds (Monitor & Wizard), 3 seconds (GroWeather & EnviroMonitors)

Wind Direction Sample Interval . . . . . 1 second (Monitor & Wizard), 1.5 seconds (GroWeather & EnviroMonitors)

Wind Direction Filter Time Constant (typical) . . . . . 8 seconds (Monitor & Wizard), 6-9 seconds (GroWeather & EnviroMonitors)

Wind Direction Display Update Interval . . . . . 2 seconds (Monitor & Wizard), 1 second (GroWeather & EnviroMonitors)

Wind Run Sample and Display Interval . . . . . 3 seconds (GroWeather & Energy EnviroMonitor)

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

Wind Speed . . . . . Average during archive interval

High Wind Speed . . . . . Maximum during archive interval

Wind Direction . . . . . Dominant wind direction during archive interval

Wind Run . . . . . Sum over archive interval (GroWeatherLink & Energy WeatherLink)

Input/Output Connections

Black . . . . . Wind speed contact closure to ground

Green . . . . . Wind direction pot wiper (360° = 20 kOhm)

Yellow . . . . . Pot supply voltage

Red . . . . . Ground

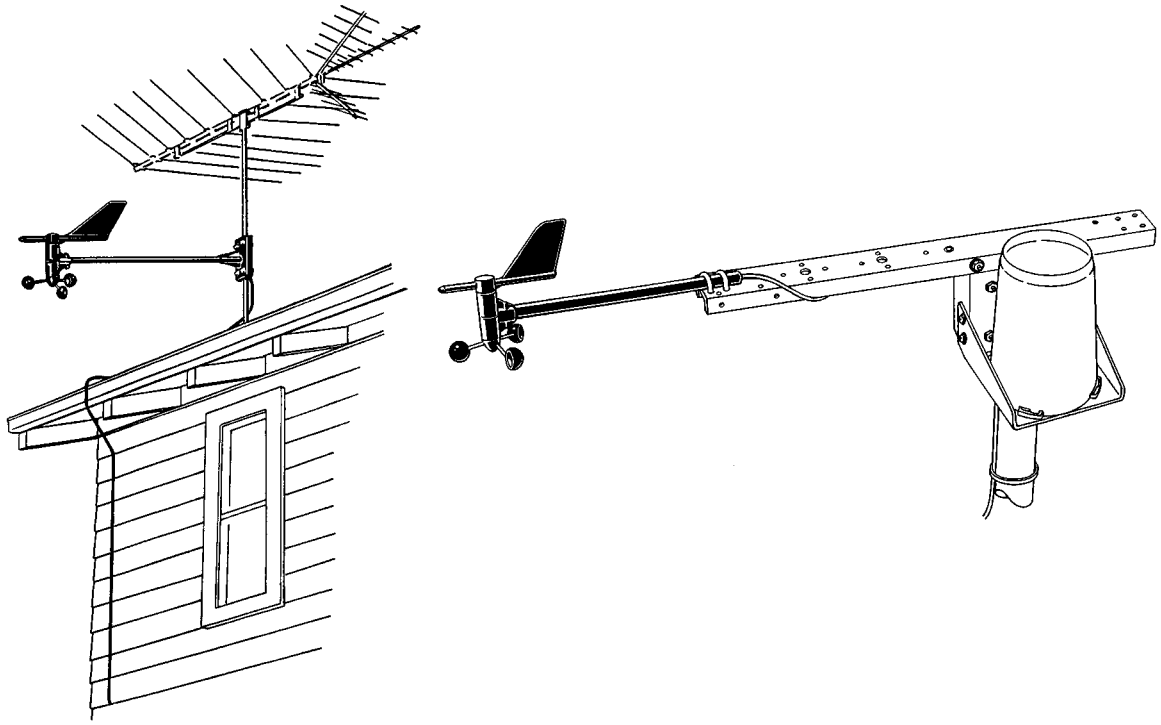
Davis Instruments 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com

DS7911-00 (Rev. B, 7/14/99)

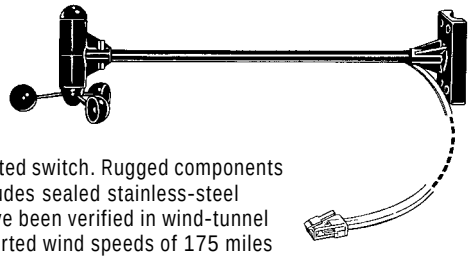
NOTES

1. On Monitor and Wizard stations, cable lengths longer than 140' (42 m) between sensors and console may artificially limit wind speed readings. That is, beyond that length, maximum recordable wind speed decreases as cable length increases. For example, with a length of 140' (42 m), the maximum recordable speed exceeds 175 mph. At 240' (72 m), however, the maximum recordable speed drops to less than 140 mph. Below that upper limit, however, the anemometer's accuracy is not affected. On GroWeather, Energy and Health EnviroMonitor stations, the maximum recordable wind speed is 175 mph regardless of cable length.

INSTALLATION OPTIONS



ANEMOMETER (WIND SPEED ONLY)



7912

SENSORS

Standard

This Anemometer comprises a wind cup assembly and magnetic field-activated switch. Rugged components stand up to hurricane-force winds, yet are sensitive to a light breeze. Includes sealed stainless-steel bearings for long life. The range and accuracy specifications of this unit have been verified in wind-tunnel tests (information available upon request). A model 7911 Anemometer reported wind speeds of 175 miles per hour before its tower collapsed during hurricane Andrew, 1992. In areas where icing of the anemometer is a problem, use Anemometer Drip Rings to deflect water from the joint between moving parts.

SPECIFICATIONS

General

- **Sensor Type** . . . . . Wind cups and magnetic switch
- **Attached Cable Length** . . . . . 40' (12 m)
- **Cable Type** . . . . . 4-conductor, 26 AWG
- **Connector** . . . . . Modular connector (RJ-11)
- **Recommended Maximum Cable Length**
  - Wizard and Monitor . . . . . 140' (42 m) Sensor to Console
  - GroWeather and EnviroMonitor . . . . . 250' (75 m) from Sensor to SIM + 250' (75 m) from SIM to Console
- **Material**
  - Control Head . . . . . UV-resistant ABS
  - Wind Cups . . . . . Polycarbonate
  - Anemometer Arm . . . . . Black-anodized aluminum
- **Dimensions** . . . . . 18.5" long x 5" high x 4.75" wide (89 mm x 83 mm x 38 mm)
- **Weight** . . . . . 2 lbs. 4 oz. (1.021 kg)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

- **Range**
  - Wind Speed (See Note 1) . . . . . 0 to 175 mph (150 knots, 78 m/s, 280 km/hr)
  - Wind Direction . . . . . 0° to 360° or 16 compass points
  - Wind Run . . . . . 0 to 1999.9 miles (1999.9 km)
- **Accuracy**
  - Wind Speed . . . . . ±5%
  - Wind Run . . . . . ±5%
- **Resolution**
  - Wind Speed . . . . . 1 mph (1 knot, 0.1 m/s, 1 km/hr)
  - Wind Run . . . . . 0.1 m (0.1 km)
- **Measurement Timing**
  - Wind Speed Sample Period . . . . . 2.25 seconds
  - Wind Speed Sample and Display Interval . . . . . 2.25 seconds (Monitor & Wizard), 3 seconds (GroWeather & EnviroMonitors)
  - Wind Run Sample and Display Interval . . . . . 3 seconds (GroWeather & Energy EnviroMonitor)

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

- **Wind Speed** . . . . . Average during archive interval
- **High Wind Speed** . . . . . Maximum during archive interval
- **Wind Run** . . . . . Sum over archive interval (GroWeatherLink & Energy WeatherLink)

Input/Output Connections

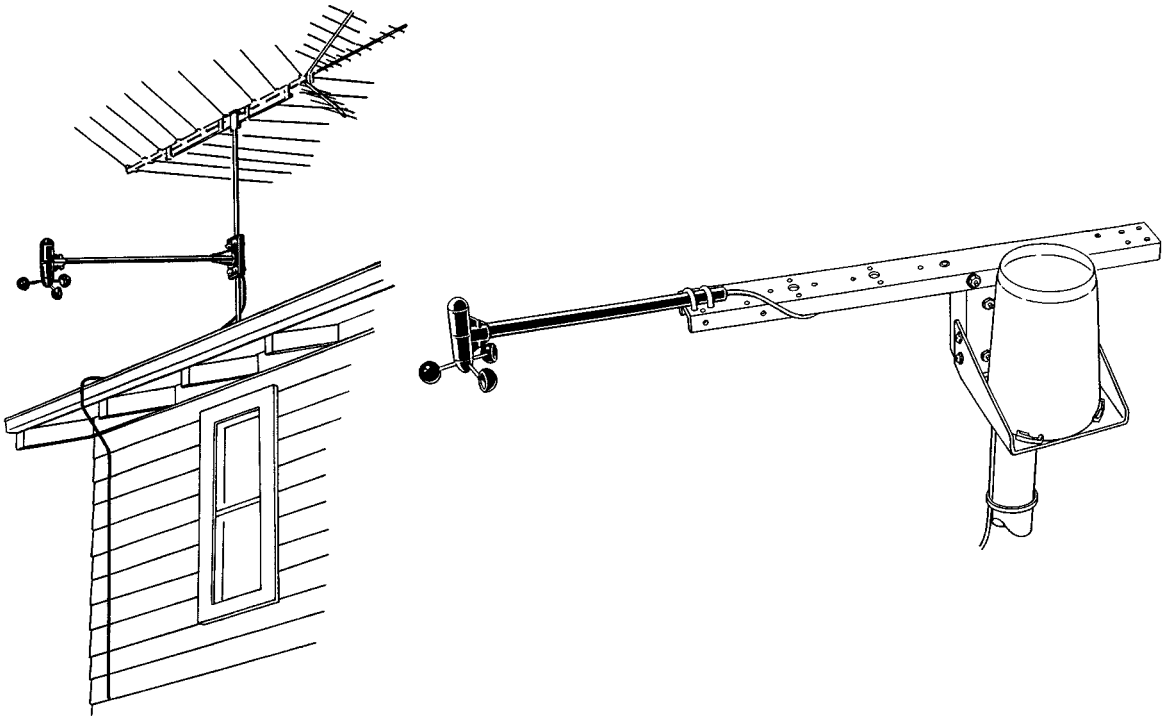
- Black . . . . . Switch Terminal
- Yellow . . . . . Not Used
- Red . . . . . Switch Terminal
- Green . . . . . Not Used

NOTES

1. On Monitor and Wizard stations, cable lengths longer than 140' (42 m) between sensors and console may artificially limit wind speed readings. That is, beyond that length, maximum recordable wind speed decreases as cable length increases. For example, with a length of 140' (42 m), the maximum recordable speed exceeds 175 mph. At 240' (72 m), however, the maximum recordable speed drops to less than 140 mph. Below that upper limit, however, the anemometer's accuracy is not affected. On GroWeather, Energy and Health EnviroMonitor stations, the maximum recordable wind speed is 175 mph regardless of cable length.

DAVIS Davis Instruments 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com
DS7912-00 (Rev. B, 7/14/99)

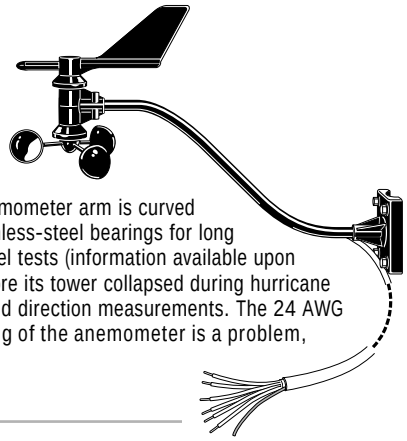
INSTALLATION OPTIONS



ANEMOMETER, **Industrial**

7914

SENSORS



The Anemometer includes both wind speed and wind direction sensors. Rugged components stand up to hurricane-force winds, yet are sensitive to a light breeze. Anemometer arm is curved upward to provide cleaner airflow over anemometer control head. Includes sealed stainless-steel bearings for long life. The range and accuracy specifications of this unit have been verified in wind-tunnel tests (information available upon request). A model 7911 Anemometer reported wind speeds of 175 miles per hour before its tower collapsed during hurricane Andrew, 1992. Digital filtering, with time constant as specified below, is applied to wind direction measurements. The 24 AWG shielded cable protects against Electro-magnetic Interference (EMI). In areas where icing of the anemometer is a problem, use Anemometer Drip Rings to deflect water from the joint between moving parts.

SPECIFICATIONS

General

Sensor Type

Wind Speed	Wind cups and magnetic switch
Wind Direction	Wind vane and potentiometer
Attached Cable Length	16' (5 m)
Cable Type	4-conductor, 24 AWG shielded cable with UV-resistant jacket, wires stripped and tinned
Recommended Maximum Cable Length	250' (75 m) from Sensor to SIM + 250' (75 m) from SIM to Console

Material

Wind Vane and Control Head	UV-resistant ABS
Wind Cups	Polycarbonate
Anemometer Arm	Black-anodized aluminum
Dimensions	21.5" long x 10.5" high x 4.75" wide (89 mm x 83 mm x 38 mm)
Weight	1 lb. 10 oz. (0.737 kg)

Console Data (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

Range

Wind Speed	2 to 175 mph (2 to 150 knots, 0.9 to 78 m/s, 4 to 280 km/hr)
Wind Direction	0° to 360° or 16 compass points
Wind Run	0 to 1999.9 miles (0 to 1999.9 km)

Accuracy

Wind Speed	±5%
Wind Direction	±7°
Wind Run	±5%

Resolution

Wind Speed	1 mph (1 knot, 0.1 m/s, 1 km/hr)
Wind Direction	1° (22.5° between compass points)
Wind Run	0.1 m (0.1 km)

Measurement Timing

Wind Speed Sample Period	2.25 seconds
Wind Speed Sample and Display Interval	2.25 seconds (Monitor & Wizard), 3 seconds (GroWeather & EnviroMonitors)
Wind Direction Sample Interval	1 second (Monitor & Wizard), 1.5 seconds (GroWeather & EnviroMonitors)
Wind Direction Filter Time Constant (typical)	8 seconds (Monitor & Wizard), 6-9 seconds (GroWeather & EnviroMonitors)
Wind Direction Display Update Interval	2 seconds (Monitor & Wizard), 1 second (GroWeather & EnviroMonitors)
Wind Run Sample and Display Interval	3 seconds (GroWeather & Energy EnviroMonitor)

WeatherLink® Data (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

Wind Speed	Average during archive interval
High Wind Speed	Maximum during archive interval
Wind Direction	Dominant wind direction during archive interval
Wind Run	Sum over archive interval (GroWeatherLink & Energy WeatherLink)

Input/Output Connections

White	Wind speed contact closure to ground
Green	Wind direction pot wiper (360° = 20 kOhm)
Red	Pot supply voltage
Black	Ground
Bare	Shield Ground

DAVIS **Davis Instruments** 3465 Diablo Ave., Hayward, CA 94545-2778
(510) 732-9229 • FAX (510) 732-9188 • sales@davisnet.com • www.davisnet.com
DS7914-00 (Rev. B, 7/14/99)

NOTES

1. On Monitor and Wizard stations, cable lengths longer than 140' (42 m) between sensors and console may artificially limit wind speed readings. That is, beyond that length, maximum recordable wind speed decreases as cable length increases. For example, with a length of 140' (42 m), the maximum recordable speed exceeds 175 mph. At 240' (72 m), however, the maximum recordable speed drops to less than 140 mph. Below that upper limit, however, the anemometer's accuracy is not affected. On GroWeather, Energy and Health EnviroMonitor stations, the maximum recordable wind speed is 175 mph regardless of cable length.

INSTALLATION OPTIONS