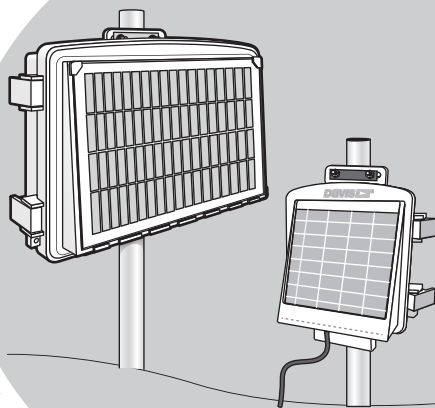


USER MANUAL

Enviromonitor Gateway[®]



Product numbers 6800 and 6801

DAVIS  [®]

Davis Instruments, 3465 Diablo Avenue, Hayward, CA 94545-2778 U.S.A. • 510-732-9229 • www.davisnet.com



FCC Part 15 Class B Registration Warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference, including interference received, including inference that may cause undesired operation.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modification not expressly approved in writing by Davis Instruments may void the warranty and void the user's authority to operate this equipment.

FCC ID: IR2DWW6800 and R17CE010-Dual

IC: 3788A-6800 and 5131A-CE910-Dual

This product complies with the essential protection requirements of the EC EMC Directive 2004/108/EC; Low Voltage Directive 2006/95/EC. Complies with EN300-220, EN301-489, EN301-511, EN-60950.



EC-Declaration of Conformity

Directive 1999/5/EC (R&TTE Directive)

Manufacturer / responsible person: Davis Instruments
Perry Dillon, Compliance Engineer
Address: 3465 Diablo Ave., Hayward, CA 94545 USA

Declares that the product:
6800 and 6801

Complies with the essential requirements of

Article 3 of the R&TTE 1999/5/EC Directive, if used for its intended use and that the following standards have been applied:

1. Health (Article 3.1.a of the R&TTE Directive)
Applied standard(s) (EC recommendation 1999/519/EC)
2. Safety (Article 3.1.a of the R&TTE Directive)
Applied standard(s) (EN 60950-1:2006/A11:2009/A1:2010/A12:2011)
3. Electromagnetic compatibility (Article 3.1.b of the R&TTE Directive)
Applied standard(s) (EN301489-1, V1.8.1, EN301489-7, V1.3.1,
4. Efficient use of the radio frequency spectrum (Article 3.2 of the R&TTE Directive)
Applied standard(s) (EN301511, V9.0.2
5. EN300-328 BTLE

The technical documentation relevant to the above equipment will be held at:

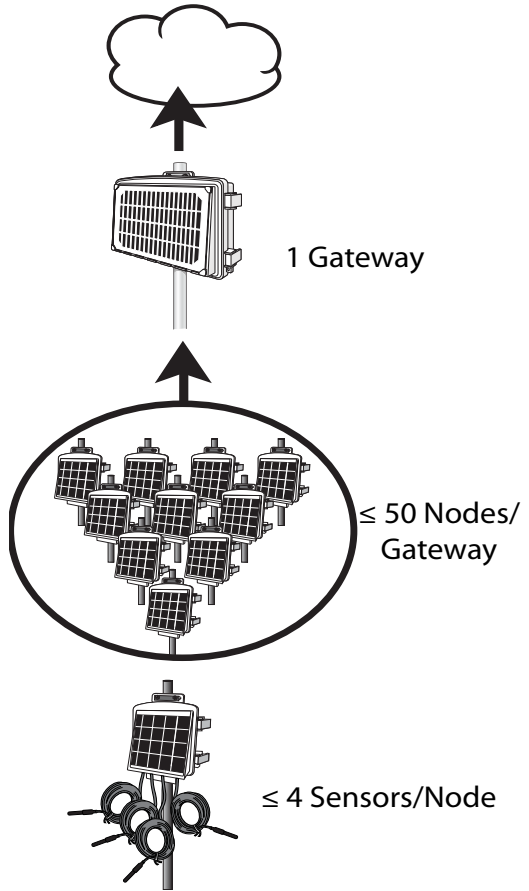
Davis Instruments at 3465 Diablo Ave, Hayward CA 94545



Welcome to Enviromonitor Gateway

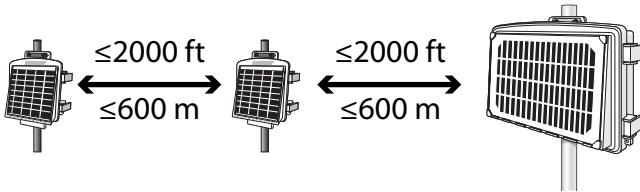
An Enviromonitor System includes a Gateway and a number of Nodes that house up to four sensors each. The Nodes transmit the sensor data to the Gateway, either directly from Node to Gateway, or indirectly by “hopping” from Node to Node to Gateway via mesh network operating at 900 MHz (different in the EU). The Gateway then sends the data via cellular connection to the Cloud.

Enviromonitor can be customized for any size installation. Each Gateway can receive from as many as 50 Nodes. Additional Gateways can be added to your system to receive from another set of Nodes.

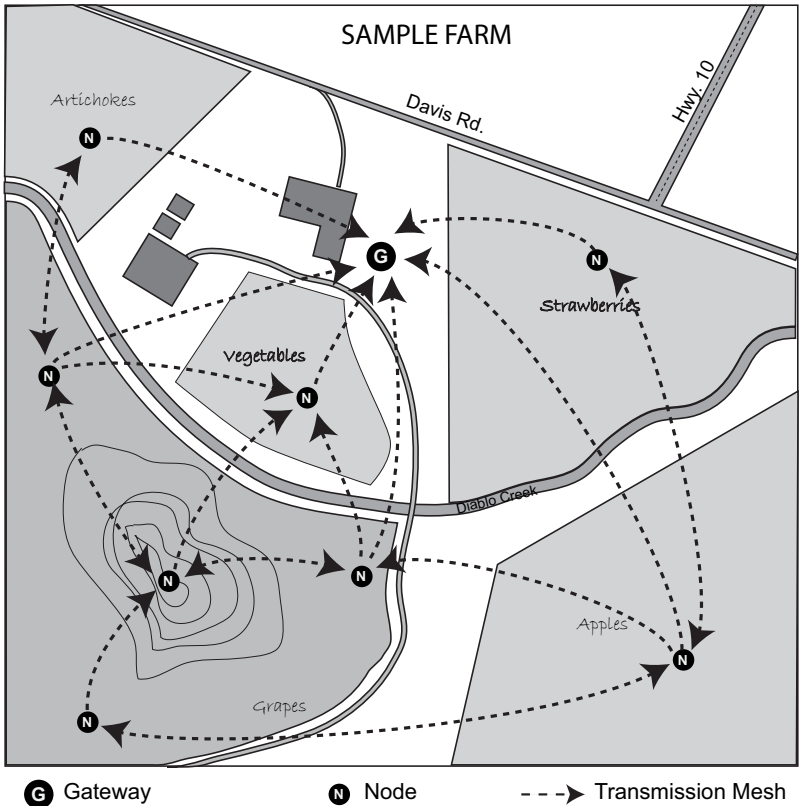


Planning Your System

Before installation, plan your system. After determining which sensors you want and where you want to install them, make sure you have the correct number of Nodes to support those sensors. The maximum distance between Nodes and Gateway will be different for installation depending on many factors, but in ideal conditions may be up to 2,000 feet (600 meters).

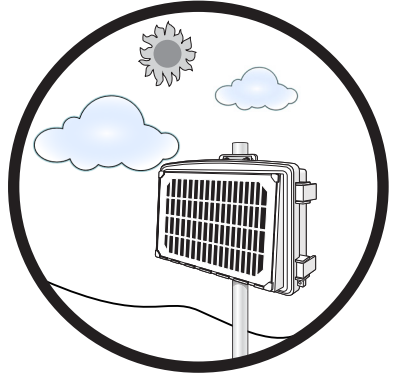


Make a sketch of your installation to get an idea of where the Gateway and Nodes should go.



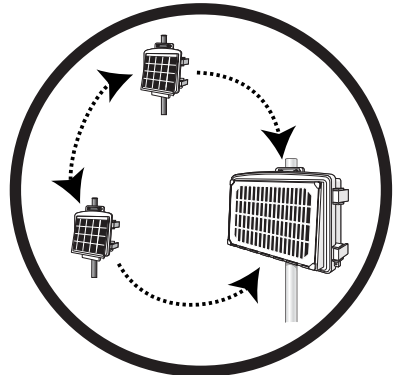
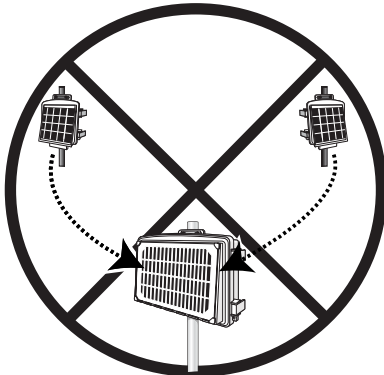
Siting the Gateway

- The Gateway should be installed where it has the strongest cellular connection and a clear, open “view” of the sky with good sunlight for the solar panel..

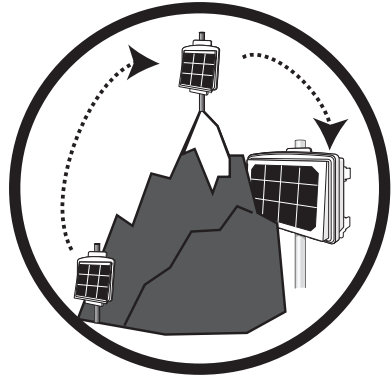


Siting the Nodes

- Make sure each Node is sited so that it has at least two ways to reach the Gateway. It should be within transmission distance (up to 2,000 feet/600 meters) of either two other Nodes, or the Gateway and another Node. This allows the mesh to “heal” any temporarily impaired transmission paths and will ensure data reaches the Gateway. You can have any number of hops from Node to Node. A Node can even be installed simply to transmit data from more distance Nodes to the Gateway, without any sensors installed in it. By planning the system’s “transmission mesh,” data can be relayed in from the most remote corner of your installation.



-
- Nodes can also be used to transmit data around or over obstacles, such as hills.



Prepare for Installation

In setting up your system, follow these steps:

- Install the Mobilize Setup App on your Smartphone. Scan the applicable QR code below or search for Mobilize Setup on iTunes or the Google Play Store.



PLACEHOLDER

Mobilize Setup
iPhone App

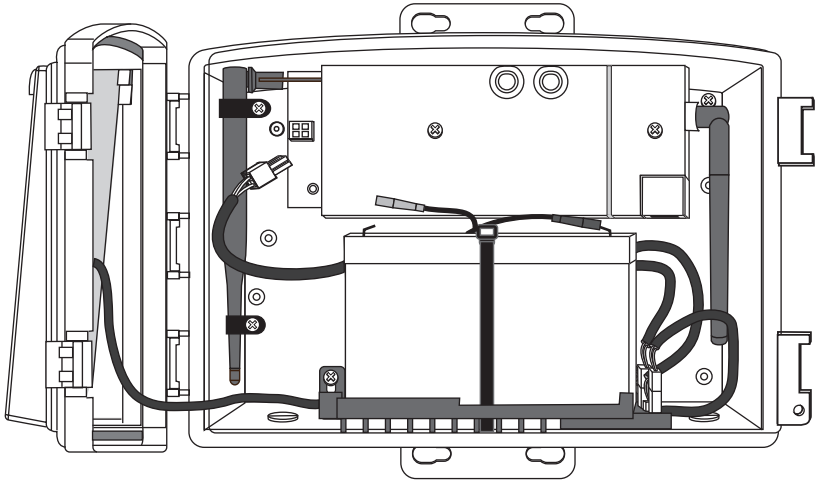


Mobilize Setup
Android App

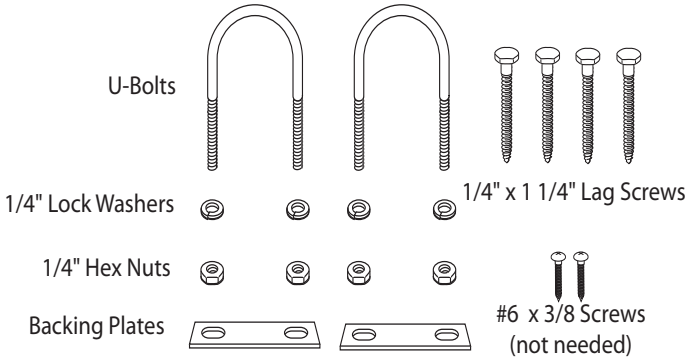
- Register your system on WeatherLink.com
- Set up the Gateway
- Mount the Gateway
- Set up Nodes
- Mount Nodes
- Install sensors

Installing the Gateway

Contents of Gateway Package



- Hardware kit (as shown below)



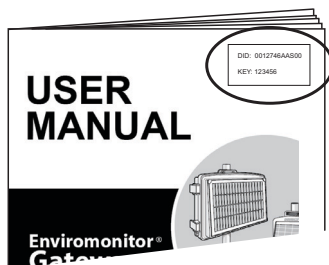
Gateway Requirements & Tools

- CDMA, GSM/2G cellular network coverage in the area where setup is performed
- Smartphone with Mobilize Setup app downloaded
- Mounting pole or post
- Wrench
- Screwdriver/power drill if mounting to a post

Register your Gateway

Note: Register your Gateway online and wait 5 to 10 minutes BEFORE you power it up to avoid a delay in uploading data. If you already powered up before registering, remove power from the Gateway, register, then repower.

1. When you receive the e-mail with the Activation Code, follow the instructions in the e-mail. (Or, go to www.weatherlink.com; click on **Register**. Select the **Gateway** option.)
2. Read and agree to the Terms of Use.
3. Enter the DID and KEY located on the sticker on the cover of this manual and on the sticker inside the Vantage Connect shelter.
4. Create and enter a user name and password, and enter your e-mail address to create a new user account.



Note: Your user name will become part of your web page's URL. For example if your user name is JohnSmith, your URL will be www.weatherlink.com/user/JohnSmith

5. Enter your time zone and indicate your Daylight Saving Time preference.
6. Enter the Activation Code received in the e-mail.
7. Click **Continue with Registration**.
8. Agree to the Service Agreement.
9. Click **Create Account**.

Configure and Set Up Your Gateway

You will need to know the transmitter IDs of each transmitting station before you configure your Vantage Connect.

Follow the prompts to enter setting and configuration:

1. Reporting Stations & Units of Measure

- Enter the transmitter ID number of each of the transmitters that will be reporting to your Vantage Connect (up to 8). Choose a station type for each. (For example, Vantage Pro2 ID: 1, Leaf and Soil Moisture Station: ID 2.) If using repeaters, check the "Enable Repeaters" box and choose the **final** repeater's ID letter for each transmitter using repeaters.
- Choose your preferred units.
- Click **Save**.

2. Device Settings

-
- For accurate barometric pressure data, enter the elevation at which your Vantage Connect will be mounted. Fine tune this sensor by entering the local barometric pressure reading. (Sources of this information include your local airport or radio station)
 - Select your anemometer and rain collector types.
 - For accurate year-to-date rain data, enter the year-to-date rainfall as of today, and when your rain season starts.
 - Station Alarms (Optional): Set alarms for high and low weather conditions. Vantage Connect will send up to 20 (counting both activate and deactivate) email or text alarm notifications per day, outside of the plan's intervals, when these conditions exist.
 - If necessary, you may calibrate temperature, humidity, and wind readings. (Be careful when deciding to calibrate; Davis weather stations are factory-calibrated for accuracy and may not match less accurate or less local data such as reported on television or a web page.) Enter the amount of offset you want the temperature or humidity reading to be reported. For example, if you believe your outside temperature data is consistently 2 degrees too low, enter +2. If you believe the outside humidity data is consistently 5% too high, enter -5. You must calibrate the wind direction if your anemometer cannot be mounted so that the arm points true north. Enter the direction the arm points, if not zero, in degrees from 1° to 359°.
 - Click **Save**.
3. **My Account.** Enter your account information.
 - Enter your City, State, Country, and latitude & longitude
 - Enter a name for your station (this will become your web page title)
 - Choose a station type and usage from the pull-down menus
 - Choose whether to show display 24-hour time
 - Check the “Keep ‘My Weather’ private” box if you do not want your current weather to be seen without a password. (No private information appears on this screen.)
 4. If any erroneous data has been logged during setup and installation, you should clear highs and lows. (For example, while setting up, the wind cups and vane were spun. This false “high wind” data should be cleared.) To clear, click **Manage Stored Data**.
 5. Click **Save**.
 6. You can edit these settings at any time by logging in to your account and clicking **My Account** then **[edit]** (to edit account information or change your password); or, in the My Device box: **Edit Configuration**, **Edit Settings**, or **Manage Stored Data**.

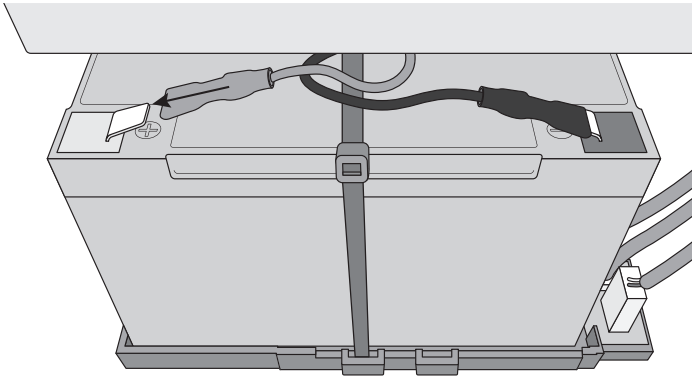
Note: These settings and configurations will be pushed to the Vantage Connect at the first update after it is set up and powered. The changes will then be sent to your WeatherLink.com page at the *next* update. So the changes will not appear on your page after at least 2 update intervals. (Update intervals are 5, 15 or 60 minutes depending on your service plan). With high network traffic, this may take longer.

Prepare Gateway for Installation

Remove all cardboard and packing materials from inside the shelter.

Connect the battery

The Gateway is shipped with one battery cable (the red, or positive cable) disconnected to prevent battery drain. Connect the red cable to the red terminal.

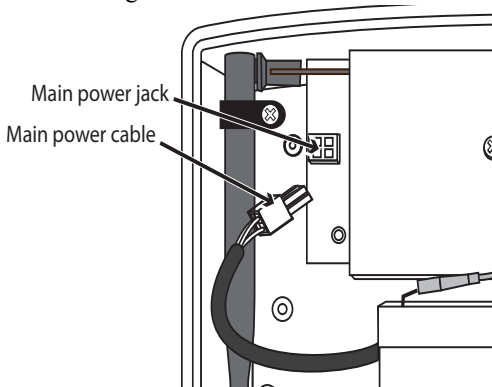


IMPORTANT: When putting your Gateway into cold storage, disconnect the red cable.

Power Up

Note: Register your Gateway online and wait 5 to 10 minutes **BEFORE** you power it up to avoid a delay in uploading data. If you already powered up before registering, remove power, register, then repower.

1. Plug the main power cable back into the jack. You should hear two beeps. The Gateway will now begin to acquire both the radio signal from the weather station as well as the cell signal. You will be able to observe this by watching the LED lights.



-
- While the Gateway is searching for signals, the LED lights will flash.
 - When the signals are acquired, the LEDs will stop flashing and stay on. After several minutes, the solid LED lights will time out and go off.

If there is a connection error, the lights will flash quickly. Their behavior will indicate the type of error. See Gateway Status LEDs: on page 16.

Note: The LED lights can be reactivated by pressing and releasing the blue status LED on/off button. After pressing the button, wait for up to 30 seconds for lights to come on. Do not hold the button down.

The Gateway will now begin to acquire the cell signal. As this is occurring, you may see the lights go on an off or blink, but after about a minute, the lights will begin to indicate the status of your connections. You will be able to use the lights to verify connection or troubleshoot connection problems by watching the LED lights.

The lights flash when Gateway is searching for a signal from the weather station (upper LED) or a cell signal (lower LEDs). Once the signal is detected, all four cell status lights will turn solid and stay on for a few minutes, indicating success. It can take several minutes to acquire all signals.

Add the Gateway

1. Make sure the Bluetooth function on your smartphone is on.
2. Open the app and tap “**Add a Gateway.**”
3. Bring the phone close to the Gateway or tap it gently on the Gateway.
4. Follow the prompts as the Gateway is located and connection is made between the Gateway and your account on WeatherLink.com.

Mount the Gateway

The best way to determine cellular connection is to take the Gateway to your proposed location and use the smartphone app to see the signal strength.

- If the signal is present but weak, it may indicate that there is an obstruction between the Gateway and the cell tower. If there are large trees or buildings in the area, these may be obstructing the signal. Try moving the location so that the obstruction is avoided. If you selected location is in a low spot, try moving to a location that is higher.
- If you get no signal in the chosen location, try a second choice location that is on the opposite side of your property.

Note: Although the radio in the Gateway is not compatible with the radio in wireless Vantage Pro2 stations, you may plug a cabled Vantage Pro2 weather station directly into your Gateway. If so, you will need to choose a location that it is within reach of the weather station's 40' cable.

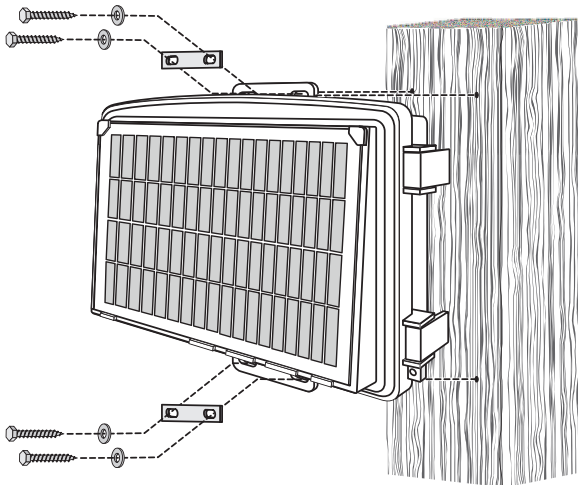
The Gateway can be mounted on a pole or a flat surface such as a wall or a wooden post.

It is important that the shelter be mounted so that the solar panel gets the greatest amount of sunshine -- the solar shelter should be facing south (in the northern hemisphere) or north (in the southern hemisphere).

Tip: *Mounting the shelter may be easier if done by two people.*

Mounting on a Flat Surface

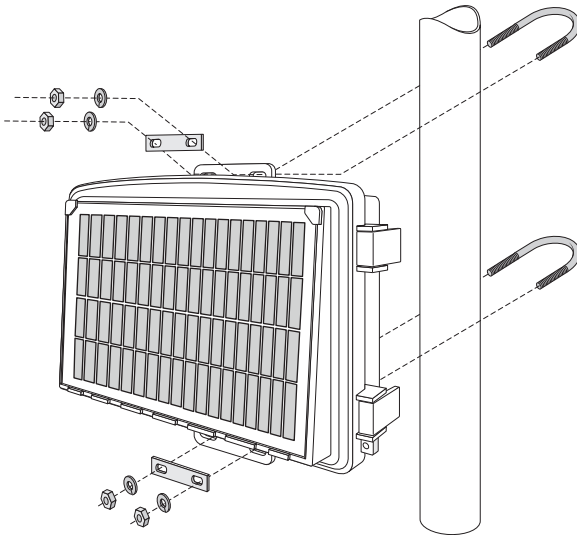
Attach the shelter to the mounting surface in the desired location using the lag screws and backing plates as shown below. Use a pencil or a center-punch to mark the location of the pilot hole.



Mounting On a Pole

Mount the Gateway onto a pole with an outside diameter of 0.84" to 1.84" (21 mm to 27 mm) using the U-bolts, backing plates, washers, and hex nuts provided.

Note: For mounting on larger diameter pipes, the housing can accommodate U-bolts with 5/6" (8 mm) threads for pipes up to 2.40" (61 mm) outside diameter (not provided).



Set Up Nodes and Sensors

See your Enviromonitor Node User Manual.

Appendix B: Using AC Power to Charge the Battery

If your installation is in a low-light area or an area with prolonged periods of time where temperatures stay below -4°F (-20°C), charging may be inhibited. You may use Davis's Optional AC Charger Kit, product number 6710, to charge the battery. The kit allows you to replace the solar charger with AC power. The adapter has a universal input (100 -240V, 50-60 Hz) and will work anywhere in the world. (A wall-plug adapter may be necessary for use in some countries.) In a cold environment, you will need to bring the Vantage Connect into a warmer environment (above -4°F / -20°C) to charge the battery with the AC Charger Kit.,

Troubleshooting

? **How can I tell if my battery voltage is getting too low?**

Our server will monitor your battery voltage and will trigger an e-mail warning if it should get critically low (approximately 14 days of power). The e-mail will go to both the registered customer's e-mail address as well as the alarm e-mail address (if one has been set up).

? **My installation is in a low light area. Can I add another solar panel?**

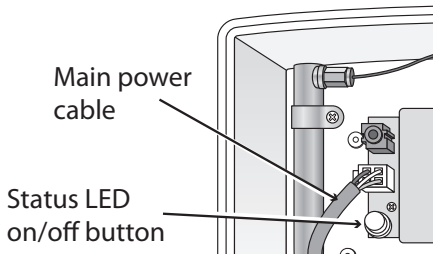
Yes. You can add an Extra Solar Panel Kit (product number 6616).

? **Can I add another battery? Can I charge the battery on AC power?**

Yes. You will also need a Universal Shelter (product number 6618) in which to mount the extra battery. Contact Tech Support for parts and instructions on adding batteries. You may also use AC power to charge the battery. See Appendix B: Using AC Power to Charge the Battery on page 13.

? **My status LEDs are not blinking.**

Make sure the power cord is connected. If power is connected and the LED is still off, press and release the blue **Status LED ON/OFF** button shown in the diagram. It can take up to 30 seconds for the lights to turn on. If the LEDs are still off, try repowering your Gateway (unplug the main power cable, wait one minute, then plug it in again). If the LEDs still do not come on, contact technical support.



? **No data is being uploaded.**

Try these steps:

- Make sure status LED is showing normal function, otherwise the device has not registered on the network. (See above to test LEDs.)
- Check power to the weather station. Make sure all cables are securely plugged in.
- Measure battery power with volt meter.
- Repower by unplugging the main power cable, waiting one minute, then plugging it in again.

If data still is not uploaded, contact Tech Support.

? **If I lose cell connectivity, but my Gateway is still powered, how much data will be stored?**

The amount of data it can store is similar to a standard data logger and dependent on your archive interval or subscription plan interval.

When the cell connection resumes, the Gateway will send this old data to weatherlink.com in what we call “catchup mode.” In catchup mode, the Gateway will send 15 records about every 2 minutes.

Archive Interval	Amount of Data Stored	Amount of data sent every 2-minutes in “Catchup Mode”
5-minute	7 days	75 minutes
15-minute	22 days	3.75 hours
60-minute	90 days	15 hours

? *How can I access my data if I am on site but don't have a PC with an internet connection?*

If you urgently need to access your weather data at your remote site but have no access to a PC with an internet connection, you can connect a laptop (or PC) directly to the Vantage Connect and download all of the archive records in its memory using the supplied WeatherLink software. You will need an interface cable. Please call Technical Support to request a Vantage Connect interface cable.

? *Can I replace my battery?*

Yes. Your Gateway comes with a battery designed to charge in temperatures as low as -4°F/-20°C.

If you need to replace the battery and your installation is in a location with low temperatures, you should replace the battery with a Davis battery, product number 7011.025.

If your installation is in a warmer climate, you may replace the battery with a 6-volt, 12 Ah, gel cell battery which will only charge at temperatures above 0°C. See Specifications on page 18.

(With either battery, your Gateway can function down to -40°F/C.)

? What do the LED lights indicate?

If there is an error in getting a signal, the status LEDs will flash to indicate the type of error.

Refer to the table below to ascertain what the LEDs mean so that you can report the problem to Technical Support.

Gateway Status LEDs:

LED Behavior		Indicates	What to do
Lower LED (Network)	Upper LED (Wx Status)		
Rapidly flashes blue on and off, while upper LED blink indicate the code. Pauses repeats.	Blinks red once, pauses and repeats.	No cellular signal found.	Move the Vantage Connect to a different location.
	Blinks red twice,	Low cellular signal	Vantage Connect may function in this
Placeholder			
Rapidly flashes blue	Alternates flashing green and red	encountered a problem and is restarting	Wait for restart.
Slowly blinks blue	Alternates flashing green and yellow	Upgrading firmware over the air.	Wait; this can take several minutes.
	Solid red	There is an error in receiving weather data from the transmitter(s).	Contact Tech Support.

Contacting Davis Technical Support

For questions about installing or operating your Enviromonitor Gateway, please contact Davis Technical Support. We'll be glad to help.

Online **www.davisnet.com**

See the Weather Support section for copies of user manuals, product specifications, application notes, software updates, and more.

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

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

Specifications

General:

Cellular Bands	850, 900, 1800, 1900 MHz
Operating Temperature	-40° to +140°F (-40° to +60°C)
Charging Temperature	-4° to +120°F (-20° to +49°C)
Storage Temperature	-40° to +140°F (-40° to +60°C)
Current Draw	25mA typical, 1A peak GPRS class 10: 146mA typical
Transmitter Power	2W @ 850/900 MHz (Class 4) 1W @ 1800/1900 MHz (Class 1)
Housing Material	Rugged ASA Plastic
Dimensions (width x length x height)	13.75 X 10 X 4.15 inches (34.9 X 25.4 X 10.5 cm)
Weight	8.14 lbs. (3.69 kg)
Battery	6 volt, 12 Ah, gel cell with quick disconnect 0.250" x 0.032" (6.35 mm x 0.81 mm) tabs
Dimensions without tabs	5.95" L x 3.70" H x 2.00" D; 151 mm L x 98 mm H x 51 mm D
Certifications:	FCC PTCRB CE Carrier

Enviromonitor® Gateway

Product Numbers 6800, 6801

Document Number: 07395.338 Rev. A December 14, 2015

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