

GETTING STARTED GUIDE

WeatherLink® Data Loggers



For Vantage Pro2™, Vantage Vue®,
and Weather Envoy™

Product number 6510USB and SER

DAVIS ®

Davis Instruments, 3465 Diablo Avenue, Hayward, CA 94545-2778 U.S.A. • 510-732-9229 • www.davisinstruments.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. 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 modifications not expressly approved in writing by Davis Instruments may void the user's authority to operate this equipment.

EC EMC Compliance

This product complies with the essential protection requirements of the EC EMC Directive 2004/108/EC.

Welcome to WeatherLink®

WeatherLink® data loggers let you connect a Vantage Pro2™ or Vantage Vue® console, or Weather Envoy™ to your personal computer so you can store, view, plot, analyze, export, and print weather data collected by the weather station. You can also upload your data to your own Weatherlink.com page. There is no cost to either upload or to open a WeatherLink account. You can then access your data on any connected device, or with the WeatherLink mobile app, on your smartphone.

This *Getting Started Guide* will guide you in installing and setting up your data logger and WeatherLink Computer Software. The software's extensive Help files contain everything you might need to know about the program's functions and features. Once you have completed these steps and have WeatherLink running, click **Help** on the top bar for more information about how to use WeatherLink Computer Software.



Contents of Package

WeatherLink data loggers are available in two types: USB and serial.

WeatherLink With USB Connection (# 6510USB)

- Data logger with USB mini-connector
- 8' (2.4 m) USB Mini-B connector cable

WeatherLink with Serial Port Connection (# 6510SER)

- Data logger with serial connector
- 8' (2.4 m) cable with connector
- Blue serial port adapter: 9-pin adapter to connect the data logger to a 9-pin serial port.
- Loopback connector: a short piece of cable with a phone plug at one end and a red plastic cap at the other. Used to determine what serial ports are available for the data logger and for troubleshooting communication.

Optional Accessories and Add-Ons

- USB-to-Serial Cable converter (product numbers 8434 & 8435)
- Standard 4-Conductor extension cable (for WeatherLink Serial): For more flexibility in placing your console, add one 40' (12 m) extension cable to extend the distance between your console/data logger and the computer (48' [14.4 m] maximum). (Product number 7876-040).

Computer Requirements

WeatherLink Computer Software is compatible with computers running Windows XP or later (Windows version), or iOS 10.1 or later (Mac version), with at least 5 MB of free disc space.

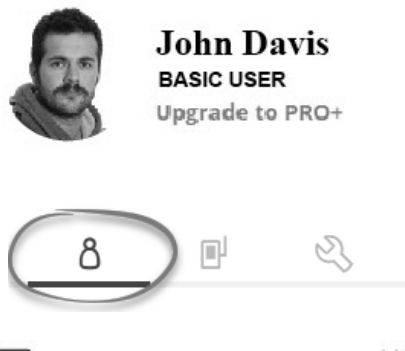
The amount of space necessary for the data files depends on the archive interval. Database files containing data stored at a 30-minute archive interval require approximately 36K of disk space per month of data. The file size grows as the archive interval becomes more frequent. For example, data stored at a 1-minute interval requires approximately 1 MB/month while the data stored at a 2-hour interval requires approximately 9K/month. You will need one free USB or Serial port.

Download the WeatherLink Computer Software

You can download the free software on your WeatherLink.com page.

To set up your free account:

1. Go to www.WeatherLink.com. Click the **Sign Up** button on the lower left corner. Enter your email account, username, first and last names, then **Next**.
2. Choose a password. You can upload a profile image now, or wait until later. Click **Browse** to select an image, or **Create Account**.
3. You will have the option to upgrade your WeatherLink.com account to Pro or Pro+, but this is not necessary to download software. Click **Get Started** under the Basic column.
4. The WeatherLink Bulletin Dashboard will appear for Davis Instruments weather data. On the right side of the screen, your name will appear. Click the Account icon under your name.

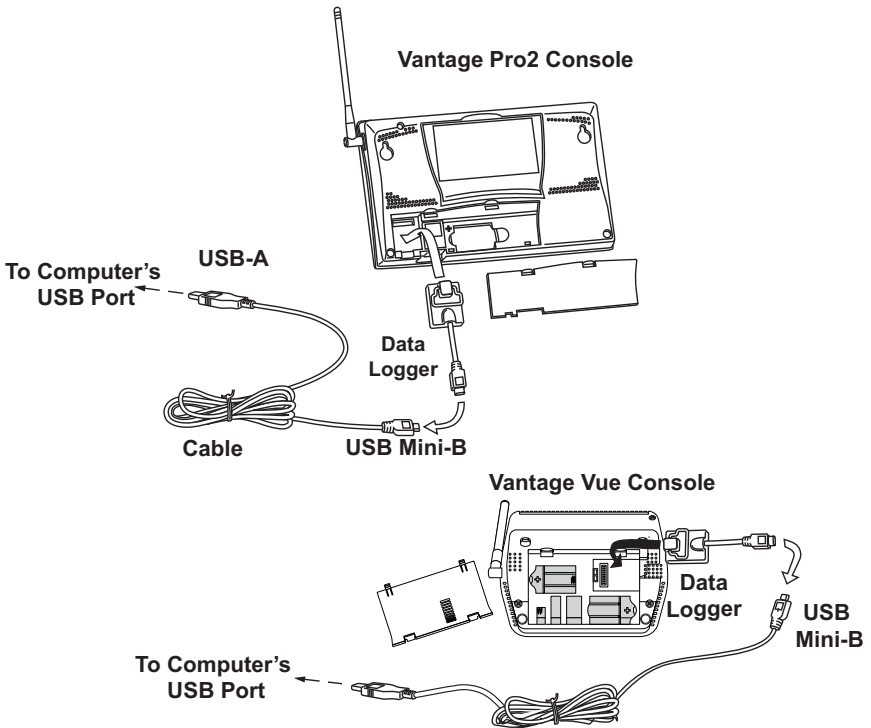


5. On the right side of the screen, click **Computer Software**. Choose the version you wish to download (Windows or Mac). Click **Confirm and download**.

Install Your WeatherLink USB Data Logger in a Vantage Pro2 or Vantage Vue Console

Note: *For Weather Envoy:* See the Weather Envoy User Guide instructions for opening the Envoy and installing the data logger. (The manual is available online at www.davisinstruments.com.)

CAUTION: Failure to remove power to the console (or Envoy) before installing or uninstalling any data logger may cause damage to the data logger or console.



1. Enter the console's Setup Mode by pressing and holding DONE, then pressing the down arrow (-). Entering Setup Mode ensures that the station is not writing any data and saves the current daily weather information to memory.
2. **Power down your console.** Remove the battery cover, the batteries, and AC-power adapter, if present. Failure to remove power to the console or Envoy before installing or uninstalling any data logger may cause damage to the data logger or console.

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3. Firmly insert the data logger into the large receptacle marked **EXPANSION** inside the battery compartment.
 4. Insert the USB - Mini B connector into the USB connector of the USB data logger. The connection between the console and the computer can be extended up to 16' (5 m) total length using a USB-to-USB connector cable.
 5. Locate a free USB port on your computer and connect the cable to the port.
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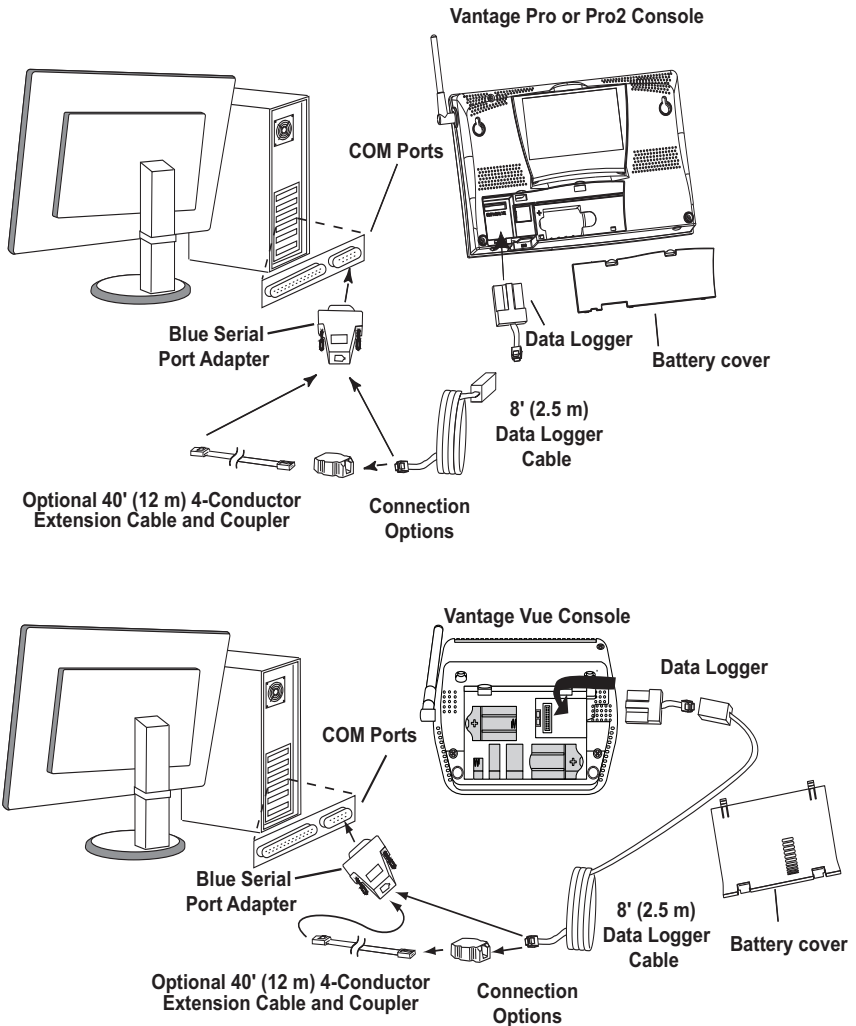
Note: Do not attempt to use more than a 16' total length extension cable, or the data logger may have difficulty communicating with the computer.

6. Reconnect the AC adapter, if present and then reinsert the batteries. The console beeps four times (Vantage Vue) or three times (Vantage Pro2); each beep occurring within one second of the others. Once power has been returned to the console, the Setup Mode is automatically displayed.
(The Weather Envoy beeps two times within one second of each other.)
7. Replace the battery cover so that the data logger cable exits through the square slot.

Install your WeatherLink Serial Data Logger in a Vantage Pro2 or Vantage Vue console

Note: *For Weather Envoy:* See the Weather Envoy User Guide instructions for opening the Envoy and installing the data logger. (The manual is available online at www.davisinstruments.com.)

CAUTION: Failure to remove power to the console or Envoy before installing or uninstalling any data logger may cause damage to the data logger or console.



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1. Enter the console's Setup Mode by pressing and holding DONE, then pressing the down arrow (-). Entering Setup Mode ensures that the station is not writing any data and saves the current daily weather information to memory.
 2. **Power down your console or Envoy.** Remove the battery cover, the batteries, and AC-power adapter, if present. Failure to remove power to the console or Envoy before installing or uninstalling any data logger may cause damage to the data logger or console.
 3. Firmly insert the data logger into the large receptacle marked **EXPANSION** inside the battery compartment.
 4. Firmly insert the data logger with serial connector into the receptacle marked EXPANSION inside the battery compartment.
 5. Locate a free serial port on the back of the computer and connect the blue serial port adapter to the port.
 6. Insert the cable plug at the end of the short cable coming from the data logger into the receptacle on the end of the 8' (2.4) cable. Then insert the cable plug on the end of the 8' cable into the serial port adapter.
 7. Reconnect the AC adapter, if present, and then reinsert the batteries. The console beeps four times (Vantage Vue) or three times (Vantage Pro2); each beep occurring within one second of the others. Once power has been returned to the console, the Setup Mode is automatically displayed.
(The Weather Envoy beeps two times within one second of each other.)
 8. Replace the battery cover so that the data logger cable exits through the square slot.

Note: To extend the cable connection between the console/data logger and computer, you may use a 40' (12 m), straight-through 4-conductor extension cable.

Set up and run the WeatherLink Computer Software

Double click to open the software.

1. The **License Agreement** dialog box displays. Review the license agreement, click **I Agree** and click **Next**. The **Select Installation Folder** dialog box displays.



2. Select the default location to install WeatherLink or find another location by clicking **Browse**.

Note: If you are upgrading your software from a previous version, make sure to install in the same directory or folder as the previous version of WeatherLink.

3. Click **Next** once you have selected a location. The **Confirm Installation** dialog box displays.
4. Click **Next** to start the installation. The **Installing WeatherLink** dialog box displays the installation progress. The **Installation Successful** dialog box displays once the software installation has been completed.

Note: During the installation process, the USBXpress Device Driver and the Virtual Comport Driver, two drivers required for USB connections, are installed automatically.

5. Click **OK**. WeatherLink has been installed successfully.

Set up your station in the software

Each console/data logger connected to the computer must have its own “station” within the software. The software creates a database for the station and other station-specific information, and requires that the necessary communication settings (communication type, etc) be set.

1. Open the software. Select **New Station** from the **File** menu. The **New Station** dialog box displays.
2. Type the desired station name (up to 40 characters/spaces) into the **Station Name** text box. The software uses the first eight characters of the station name (not counting spaces or punctuation marks) as the name of the directory where it saves this station’s database and configuration files. The first eight characters of each station name must, therefore, be unique.
3. Click **OK** to save the new station or click **Cancel** to exit without saving. The software saves the new station, creates a directory and a configuration file for the station, and prompts you to enter the walk-through procedure.

About the Walkthrough

The software includes a station setup “Walkthrough” to guide you through the weather station configuration. After adding a new station, the **Walkthrough** dialog box automatically displays. Select **Yes** to start the Walkthrough, **No** to cancel it.

The Walkthrough displays a series of dialog boxes. At each step in the process, confirmation boxes are provided to allow you to perform (select OK) or skip (select **Skip**) the step. To continue, select **OK**. To cancel the entire Walkthrough process, select **Cancel**.

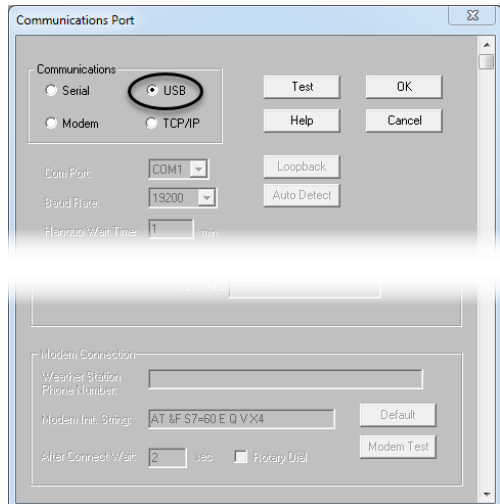
Note: You can set up and configure your station by separately selecting all of the necessary setup options from the **Setup** menu.
Please refer to the WeatherLink Online Help for more information about the complete Walkthrough process.

Communication Port Settings

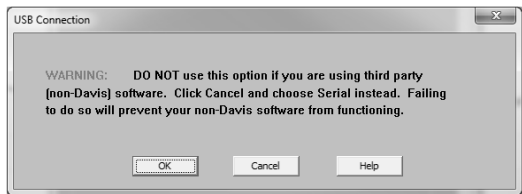
Use the **Communications Port** dialog box to select the communications type and to test communication between the computer and the console/data logger. Select **Communications Port** from the **Setup** menu or use the Walkthrough to display the dialog box.

WeatherLink USB

1. Select **USB** in the **Communications Port** dialog box for direct USB connection. (That is, if you have a USB data logger and you are not using any third-party applications.)



2. When the **USB** button is selected, the **USB Connection** dialog box displays. Click **OK**



Note: If you have a USB data logger and want to use it with third party software, you will need to set up your data logger so that it emulates a COM port connection. You should click **Cancel**, then follow the instructions for a WeatherLinkSER connection. See "WeatherLink SER" on page 10.

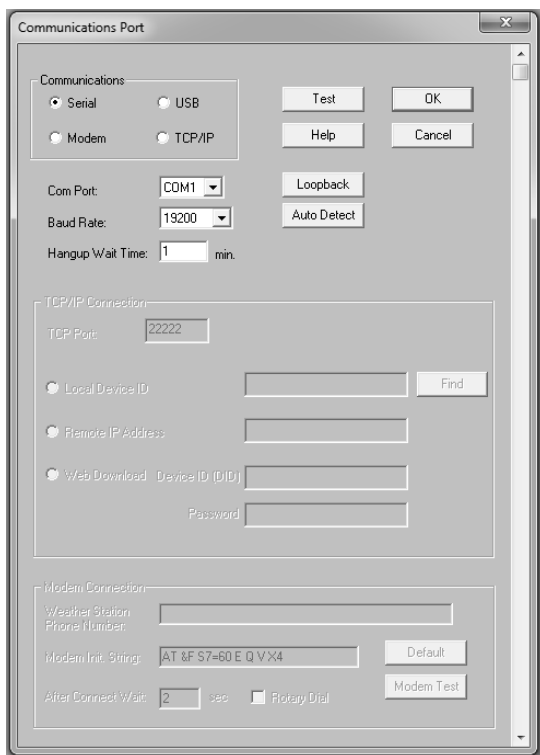
Once the data logger has been set up as USB direct, it cannot be easily converted to emulate a serial port connection within the software. A utility is included with the WeatherLink software that allows you to convert it from a direct USB data logger to a USB data logger that emulates the COM port. To use this utility, select **CP210X to Serial Converter** in your WeatherLink program group on the Start menu of your computer (Start>AllPrograms>WeatherLink>CP210X to Serial Converter) and run the utility to convert your data logger back to emulate a COM port. Please contact Davis Technical Support ("See "Contacting Davis Technical Support" on page 17) for more information.

3. Click **Test** to verify communication.
4. Click **OK** to save the Communications Port settings.

Note: Leave the BAUD rate at 19200. The console BAUD rate should also be set to 19200. This is the default setting. See your console User Guide if it needs to be reset to 19200.

WeatherLink SER

1. Select Serial in this field if you have a serial data logger, or are using a USB data logger and third party software that requires communication via a COM port.
2. From the drop-down list, select the communications port number of the port to which you connected the data logger, or click **Auto-Detect** to find and select the correct COM port being used for your serial port connection.
3. Confirm that the **Baud Rate** drop-down list box is showing **19200** Baud. If it is not, click the drop-down list and select **19200**. (Assuming you have not changed the Baud rate on your console. The two must be the same.)



Note: The console BAUD rate should also be set to 19200. This is the default setting. See your console User Guide if it needs to be reset to 19200.

4. Click **Test** to verify communication.
5. Click **OK** to save the Communications Port settings.

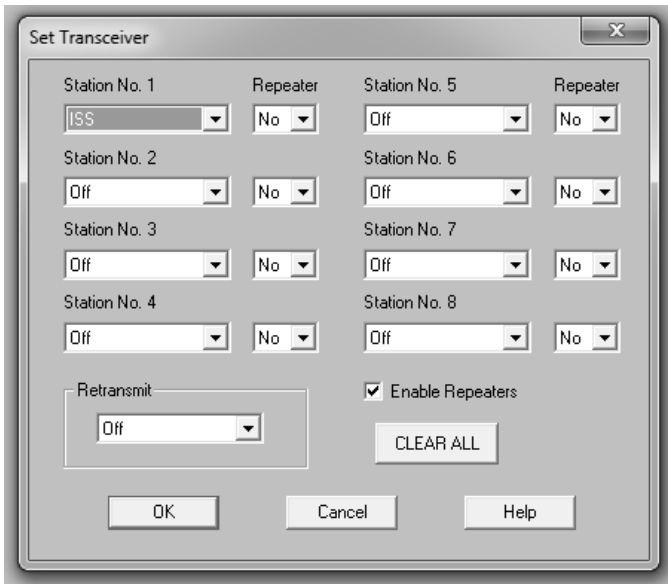
Set Transceiver IDs

Transceiver IDs tell the console/data logger which transmitting stations to “listen to.” Use the **Set Transceiver** dialog box to view and/or configure your station transmitter IDs and repeater ID assignments and to control the retransmit function.

Note: For Weather Envoy, this dialog box is the only available tool for configuring the transmitter ID and repeater ID settings on your Envoy.

To set transceiver options:

1. Select **Set Transceiver** from the **Setup** menu.



2. Select a Station Type for each of the possible 8 channels your system may be receiving. You must set up each station here to match the ID number you assigned the outside transmitters. For example, if you set your sensor suite to ID 2, you must choose ISS in the Station No. 2 field. If there is no outside transmitting station assigned ID 3, set the Station No. 3 to “Off.” See the WeatherLink Online Help System for more information on configuring the stations, the retransmit feature and configuring the Envoy for using repeaters.

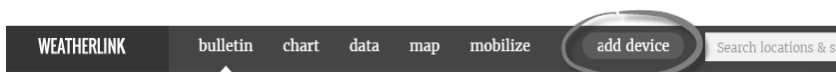
Note: The Vantage Pro2 and Vantage Vue sensor suites are set at the factory to ID 1.

Set Up Uploads to WeatherLink.com

Add your data logger to your account

Note: Your computer must be on with WeatherLink Computer Software running in order to upload to WeatherLink.com.

1. On your WeatherLink.com page, click the green **Add Devices** button at the top of the page.



2. Click **Install** under Data Logger.
3. Follow the prompts to enter your station's name, model, usage, location, and whether or not your current conditions should be displayed on the map and available to other users. A screen will appear with your data logger's Device ID and Key. **Make a note of these.**
4. In the WeatherLink Computer software, click on **WeatherLink Network** in the Setup menu.
5. Enter the Device ID and Key you received during your WeatherLink.com account setup, and click OK.

Your data will now start uploading to your WeatherLink.com page. You should see your data on your WeatherLink.com page within a few minutes. You will see a check mark next to Network Upload when it is on. Use this menu item to toggle upload off and on.



Install the mobile apps

You will be able to access your current data on your smartphone with the WeatherLink mobile app. Find it by searching for WeatherLink in the iOS App Store or Google Play Store. Your username and password are the same as those for your WeatherLink.com account.

You can also install the Davis Mobilize app for more agricultural-focused reports and analysis.



WeatherLink mobile app



Mobilize app

Troubleshooting Guide

If you don't find a solution here or in the online help files, please contact Technical Support.

Communications Problems

1. If you are having trouble establishing communication between the weather station and the data logger, start by checking the console's own diagnostics. Put the console in Setup mode and then remove all power to the console and restart it by restoring power (with the data logger still attached).

Note: The data logger uses nonvolatile memory, so any previously recorded data is still stored. However, put the console in Setup Mode (by pressing and holding DONE, then pressing the down arrow “.”) before removing power.

2. A series of beeps sound from the console, each of which occurs when the weather station passes one of its diagnostic tests. Each beep follows the previous after about one second. For Vantage Vue, you should hear four beeps; for Vantage Pro or Pro2, you should hear three beeps; for Weather Envoy, you should hear two beeps. If you do not hear one or more of these beeps, contact Technical Support.
3. If the console sends four (Vantage Vue); three (Vantage Pro or Pro2) or two (Weather Envoy) beeps, check the Communication Port Settings. See “Communication Port Settings” on page 9 for instructions on checking communication settings.
4. If the Communications Port Settings are correct, try repowering. To re-power:
 - Close the WeatherLink software.
 - Disconnect, then reconnect, the data logger from the console or Envoy.
 - Open the WeatherLink software again.

Further steps, if needed:

Direct USB connection:

1. Open the **Communications Port** dialog box. Select **USB** if USB is not selected in the communications field and follow the prompts.
2. Click **Test** to verify communication between the station and the software.
3. If the test is unsuccessful, either the station is malfunctioning or the driver for communicating with USB has not been installed successfully. To verify that the driver is installed, look in Windows' System Properties -> Device Manager -> Universal Serial Bus Controllers and see if the USBXpress Device is listed.
4. If the driver is listed and there is still no communication between the station and the computer, call Technical Support.

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5. If the drivers is not listed, contact Technical Support for instructions on installing the necessary driver.

USB emulating COM connection:

1. Open the **Communications Port** dialog box. Select **SER** if SER is not selected in the communications field and follow the prompts.
2. Click **Test** to verify communication between the station and the software.
3. If the test is unsuccessful, either the station is malfunctioning or the driver for communicating with USB has not been installed successfully. To verify that the driver is installed, look in Windows' System Properties -> Device Manager -> Ports and see if the Silicon Labs USB to UART Bridge is listed.
4. If the driver is listed and there is still no communication between the station and the computer, call Technical Support.
5. If the driver is not listed, contact Technical Support for instructions on installing the necessary driver.

Serial port connection:

1. Check the serial port adapter. Use only the blue serial port adapter supplied with the data logger. Older models, or models other than the one supplied with WeatherLinkSER, are not compatible.
2. Check the Baud Rate setting on the console and in the **Communication Port** dialog box in the software. Make sure they have the same number. See your console manual for information on how navigate to the Baud Rate Screen on your console. This screen appears only if a data logger is plugged into the console.
3. Test the serial port using the provided loopback connector. Use the **Loopback** loopback connector (the short cable with a phone jack on one end and a red plastic tip on the other) supplied with WeatherLinkSER.

Plug the loopback connector into the blue serial port adapter.

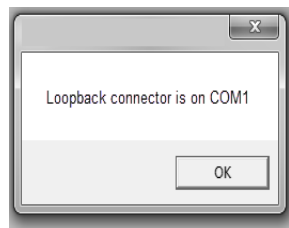
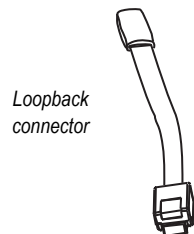
Select Communications Port from the **Setup** menu.

The **Communications Port** dialog box displays.

Click **Loopback**.

The software will display the COM number to which it is connected and the correct COM port is automatically selected in the **Communications Port** dialog box.

If the loopback connector is not found on any COM port, your serial port may not be working. If a connection



still does not exist or if the loopback test identifies the same serial port you have selected, eliminate the following possibilities before contacting Technical Support:

- **Hardware device conflict**—Check the **Device Manager** tab in the **Windows System Properties** dialog box to ensure that Windows recognizes the selected COM port. Consult your computer's documentation to see how to access the System Properties dialog box.
- **The communication port uses a nonstandard device name**—WeatherLink recognizes serial ports named COM1 through COM18 only.
- Your serial port is defective.
- The loopback connector or the WeatherLink adapter plug is bad.

Program Problems

? *The barometer graph on the Bulletin does not “fill in” completely.*

When you first load the bulletin, the barometer graph will only fill in completely when you have data in your database for the last six hours. Make sure of the following:

- There is data in your database for the span of the barometer graph.
- The time and date of the stored barometer data is correct in your database.
- The time and date on the PC is correct.
- The time and date on the console are correct.
- In the **Station Configuration** dialog box, set the **Download archive data when Bulletin or Summary is started** drop-down box to **Always** or to **Confirm each time**.

? *No wind direction reading (or dashes instead of a reading) appears in my database.*

Be aware that if there is no wind speed when the direction is being sampled, wind direction is not recorded. During intervals with very little wind speed, no direction may be recorded.

Note: Because high wind speed is sampled more often, it is possible to have a high wind speed but no wind speed or direction.

? *WeatherLink says “No new data to download” but I know there’s data there. What can I do?*

The Vantage Pro2 and Vantage Vue systems are “smart” enough to send only data it hasn’t already sent to the computer. When you initiate a new download, the program will retrieve the first record after the last record shown in the WeatherLink’s Browse Window. To see what records are stored in the logger, create a new station and download the data into this new database. Because there were no records stored in the station you just created, WeatherLink will download everything it has stored. Wait a few minutes and try downloading data again.

Next, try clearing the archive memory using the clear dialog box. You will lose any data not already downloaded in your archive memory, but all of your calibration numbers and alarm settings will remain intact. If this doesn’t work, remove and then restore all power to the console. Wait a few minutes then try downloading again.

? *When viewing data, dashes appear in place of a value for functions other than wind direction. Why?*

If no data was recorded by a sensor (for example, the sensor was disconnected or radio interference blocked reception), or if bad data was recorded for a sensor (for example, the sensor was malfunctioning), the software dashes out the entry rather than showing invalid data. You can use the record editor to correct these entries.

? *The data I want to see, such as solar radiation, soil moisture, or Temp 2 does not display. Why?*

All optional sensors must be enabled in the **Station Configuration** dialog box before the data will be displayed in WeatherLink. If you are not seeing data from a sensor that is installed in your weather station, be sure check the **Station Configuration** in the **Setup** Menu and make sure the sensor has been selected.

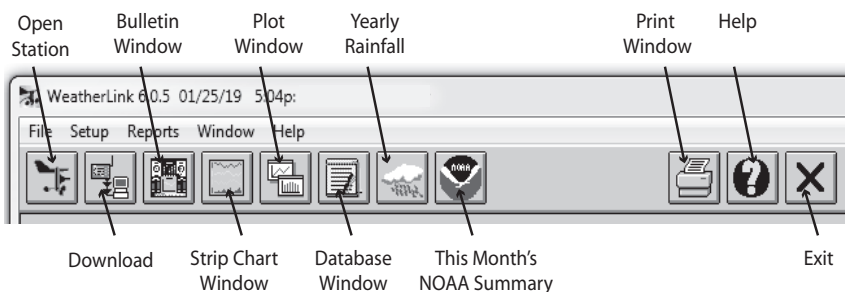
Contacting Davis Technical Support

For questions about WeatherLink Computer Software and data logger, please contact Davis Technical Support. We'll be glad to help.

Note: Please do not return items to the factory for repair before calling to get a Return Materials Authorization number.

Online	www.davisinstruments.com Find copies of user manuals, product specifications, application notes, software updates, and more.
E-Mail	support@davisinstruments.com
Telephone	(510) 732-7814 Monday - Friday, 7:00 A.M.- 5:30 P.M., Pacific Time

Tool Bar Icons



Hot Keys

Main Program Window

Ctrl-A Set Alarms
 Ctrl-B View Bulletin
 Ctrl-C Station Configuration
 Ctrl-E Internet Settings
 Ctrl-H Hang Up/Hang Up
 Ctrl-I Communications Port Settings
 Ctrl-J Automatic Download
 Ctrl-K Walkthrough
 Ctrl-L Download
 Ctrl-O Open Station
 Ctrl-P Print Active Window
 Ctrl-Q Open Plot Window
 Ctrl-R Yearly Rain Report
 Ctrl-S Open Strip Charts
 Ctrl-T Set Time
 Ctrl-U Select Units
 Ctrl-V View Download Log
 Ctrl-X Auto Fax Settings
 Ctrl-Y View Summary
 Ctrl-Z Close Window
 F1 Help
 F2 Sunrise/Sunset Report
 F7 NOAA This Month
 F8 NOAA This Year
 F12 Network Uploads On/Off

Strip Chart Window

ESC Halt Redraw
 Ctrl-M Make Default
 Ctrl-P Print Strip Chart
 F1 Help
 F3 Zoom In
 F4 Zoom Out

Plot Window

ESC Halt Redraw
 Ctrl-D Choose Date
 Ctrl-M Make Default
 Ctrl-P Print Plot
 F1 Context-Sensitive Help
 F3 Zoom In
 F4 Zoom Out
 F9 Overlay Plots
 F10 Last Year Plot

Database Window

Ctrl-D Choose Date
 Ctrl-N Add Note
 Ctrl-P Print Records
 Enter Edit Record
 Delete Delete Record
 F1 Help

Yearly Rainfall Window

Enter Edit Year
 Delete Delete Year

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