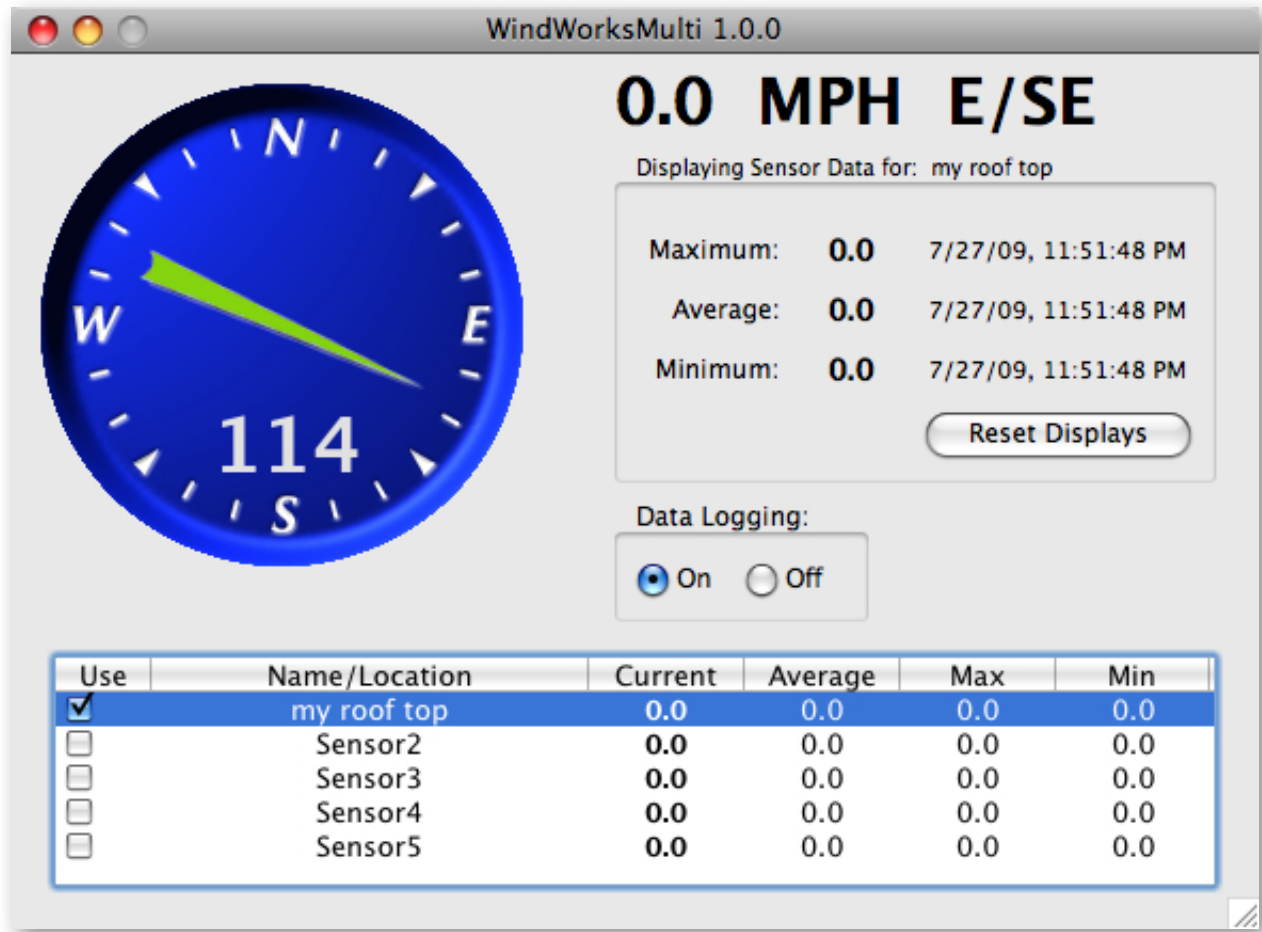


# WindWorksMulti™

Wind Speed & Direction Data Acquisition Software for Mac & Windows



Thank you for purchasing WindWorksMulti wind speed and direction data acquisition software. We hope it will provide you with valuable information about the wind patterns in your area. WindWorksMulti currently only supports wind sensors from inspeed.com.

Please test everything before you install the sensors on your roof or wherever they will be.

## INSTALLATION

### WindWorks Interface Board(WWIB)

Attaching wires from Vortex Wind Speed Sensor and Vortex Wind Vane to the WWIB.

Important! Make sure you ground yourself before working on the WWIB.

When you open up the WWIB you will find a shield mounted on top of the board with one 3 screw terminal block and one 10 screw terminal block.

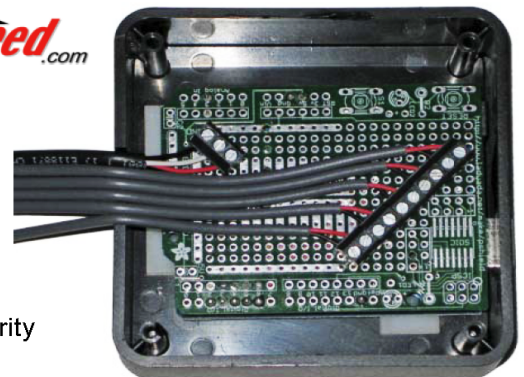
The 3 screw terminal block is for the wind vane and is wired according to the instruction sticker provided by Inspeed (and shown below). The 10 screw terminal is for the 5 reed switch inputs. The pair closest to where the wires enter the box is for Sensor1, the next pair is for Sensor2 etc.

Close up WindWorks interface board.



**E-Vane:**  
Black  
White  
Red

**Wind Sensors:**  
5 pairs  
no polarity



## INSTALLATION

### WindWorksMulti Software

#### !!! VERY IMPORTANT !!!

**Do Not** plug the WWIB into the computer until after you have installed the USB drivers.

### Windows Installation

Download the WindWorksMulti Installer from the URL provided on the slip of paper in the package you received. Unzip it to reveal the WindWorksMulti installer "setup.exe" file.

Double-click "setup.exe" and follow through the setup wizard.

If you make no changes it will install the program to this location:

C:/Program Files/ByTheBeachSoftware/  
WindWorksMulti

It will also place a shortcut on your desktop for easy access to the program.

After going through the installer there will be a USB Drivers folder in the WindWorksMulti folder that you just installed. Double click the file named "CDM 2.04.16.exe" to install the USB Drivers for the WindWorks Interface Board.

The installation is now complete!

Plug in the supplied USB cable from the computer to the board. Watch the tray bottom right and wait for windows to finish recognizing the new device.

### Macintosh Installation

Download the WindWorksMulti Installer from the URL provided on the slip of paper in the package you received. Unzip it to reveal the WindWorksMulti disk image.

Mount the disk image by double clicking the .dmg file. Copy the WindWorksMulti folder to your Applications Folder.

There is a USB Drivers folder in the WindWorksMulti folder that you just installed. Double click the file named "FTDIUSBSerialDriver\_v2\_1\_10.dmg" to mount the disk image. Then install the USB drivers for the WindWorks Interface Board.

The installation is now complete!

Plug in the supplied USB cable from the computer to the board.

### Getting Started with WindWorksMulti

Launch your WindWorksMulti software. On the first launch you will be asked to set up your preferences.

1. Select the USB Port that the WindWorks interface board is connected to. It will be named something like "usbserial-A1001Nyz" on the Mac and "COM3" on Windows.

**NOTE: Windows OS** If you have other COM ports in use and are not sure which one is WindWorks, here is a way you can see which port is being used for the WindWorks interface board. Right mouse click on My Computer and select Manage. Then select Device Manager and go down to Ports. If the WindWorks Interface board is plugged in and the USB Drivers were installed correctly, you should see an option for "USB Serial Port" and it will have COM# in paranthesis next to it. This is the COM port your board is connected to. Select this COM port in your WindWorks Preferences.

2. Select the Wind Speed measurement units.
3. Set the Alarm trigger speed.
4. Set the Rotor Value to 2.5 for the **D2** rotor and 3.4 for the **M1** rotor.

(continued next page)

5. Set the Direction Smoothing value to 15 for a smoother display or 5 for a more responsive display. The value is an odd number from 5-15.
6. Set the Direction Adjustment value to calibrate for a more accurate North reading. The value is -179 to 179 degrees.
7. Direction Max Voltage Calibration: Only change this value if you have a voltage drop on the 5v supply line over a very long distance.
8. Set the name and path for the data file. The default path will be in the WindWorks folder and the name will be "WindData.csv".
9. Select the Averaging Method you wish to use.
 

**Arithmetic Mean:** add up samples and divide by number of samples. (*Note: display average uses this method.*)

**Truncated(n%):** throws out the highest and lowest n% and then does arithmetic mean

**Root Mean Squared(RMS):** square root of the mean of the squares of the values

**Root Mean Cubed(RMC):** cube root of the mean of the cubes of the values  
(*Note: Since power from wind energy is related to the cube of wind velocity, Root Mean Cubed(RMC) is the best way of looking at average wind speed.*)
10. Set the Log Interval. The minimum is one minute. this is the interval that the software will use to add an entry to the WindData.csv file.
11. Set Auto Log Start. This will auto start logging when you launch the application.
12. Save your preferences.

After saving the preferences you will see the main display show "Connecting..." for 5 to 10 seconds and then you will see it display the speed and direction once per second. If you are having trouble connecting, please verify that the operating system recognizes the device (see Note from step 1) and that you have selected the correct port in preferences. If you are still having trouble please email support at :  
[support@bythebeachsoftware.com](mailto:support@bythebeachsoftware.com), you can also find a link to this email in the About screen.

Wind direction defaults to a rolling average of the last 15 seconds/samples.

The display will hold the wind speed average since the application was launched or since the last reset.

The "Reset Displays" button does exactly that and resets the MIN, MAX and AVE. It has no effect on the data file

### About the data file...

Any spreadsheet or text editor can open the data file for plotting or analysis.

When opening the files in Microsoft Excel or comparable programs, make sure to look for "ALL FILE TYPES" in order to see the wind data file.

Stopping and starting data logging APPENDS data to the existing file, with a new header; it will NOT overwrite existing data.

(*Sample data file on next page*)

First line contains date and time stamp when logging started, measurement units, log interval, and averaging method.

Second line contains column headers, which will repeat for each active sensor.

**CurrentDateTime:** date and time stamp for this entry

**CurrentSpeed:** speed at the above date and time

**AverageSpeed:** the average of a reading per second over the log interval. An example: if log interval is set to 3 minutes than  $3 \times 60 = 180$  samples so the average will be for 180 samples

**MaxSpeed:** max speed recorded during that interval

**MinSpeed:** min speed recorded during that interval

**DirectionText:** direction text at the above date and time

**DirectionDegrees:** numerical direction value in degrees at the above date and time (rolling 15 second/sample average)

Third line contains sample data, which will repeat for each active sensor.

Fourth line contains log termination message.

## Sample Data File

```
***** Logging Started 2009-07-27 23:16:24 Units = MPH Log Interval = 1 min. Averaging Method = Arithmetic Mean *****  
CurrentDT,SensorName,CurrentSpeed,AverageSpeed,MaxSpeed,MinSpeed,DirectionText,DirectionDegrees  
2009-07-27 23:18:24,my roof top,3.2,2.0,6.0,0.0,S/SE,166  
***** Logging Stopped 2009-07-27 23:22:22 *****
```

***Thank you and enjoy your WindWorks Kit!***

