WindWorks™
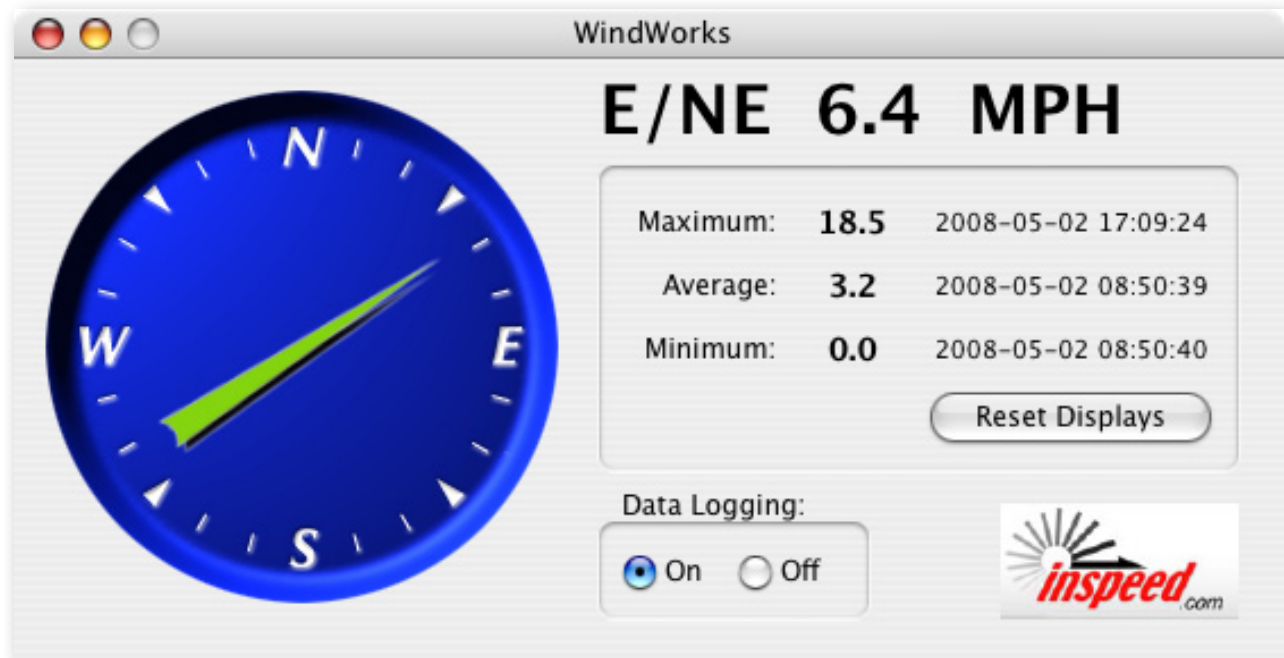
Wind Speed & Direction Data Acquisition Software for Mac & Windows

Thank you for purchasing WindWorks wind speed and direction data acuisition software from Inspeed. We hope it will provide you with valuable information about the wind patterns in your area.

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

INSTALLATION
WindWorks Interface Board(WIB)
Attaching wires from Vortex Wind Speed Sensor and Vortex Wind Vane to the WIB.

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

The screw terminals are numbered 1-4 from left to right when viewing them from the top (screw heads up). Open the WIB and connect one wire from your Vortex Wind Speed Sensor to screw terminal 1 then connect the other wire from the wind speed sensor to terminal 2.

Now connect the Ground wire from your Vortex Wind Vane to terminal 2 and the +5V wire to terminal 3 and the Output wire to terminal 4.

If you wish to trigger a low-level external electrical device based on the alarm in WindWorks, you can do so as follows:

Connect your low level device to digital pin4 on the board and ground.

See inspeed.com for details and specification.

Close up WindWorks interface board.

INSTALLATION
WindWorks Software
!!! VERY IMPORTANT !!!
Do Not plug the WIB into the computer until after you have installed the USB drivers and rebooted.

Windows Installation
Download the WindWorks Installer from inspeed.com. Unzip it to reveal the WindWorks installer "wwsetup.exe" file.

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

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

C:/Program Files/Inspeed.com/WindWorks

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 WindWorks folder that you just installed. Double click the file named "CDM 2.04.06.exe" to install the USB Drivers for the WindWorks Interface Board.

The installation is now complete!

Plugin the supplied USB cable from the computer to the board. Wait for windows to finish recognizing the new device.

Macintosh Installation

Download the WindWorks Installer disk image from inspeed.com. Unzip it to reveal the WindWorks disk image.

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

There is a USB Drivers folder in the WindWorks folder that you just installed. Double click the file named "FTDIUSBSerialDriver_v2_1_9.dmg" to mount the disk image. Then install the USB drivers for the WindWorks Interface Board.

The installation is now complete!

Plugin the supplied USB cable from the computer to the board.

Getting Started with WindWorks

Launch your WindWorks software. On the first launch you will be asked to set up your preferences.
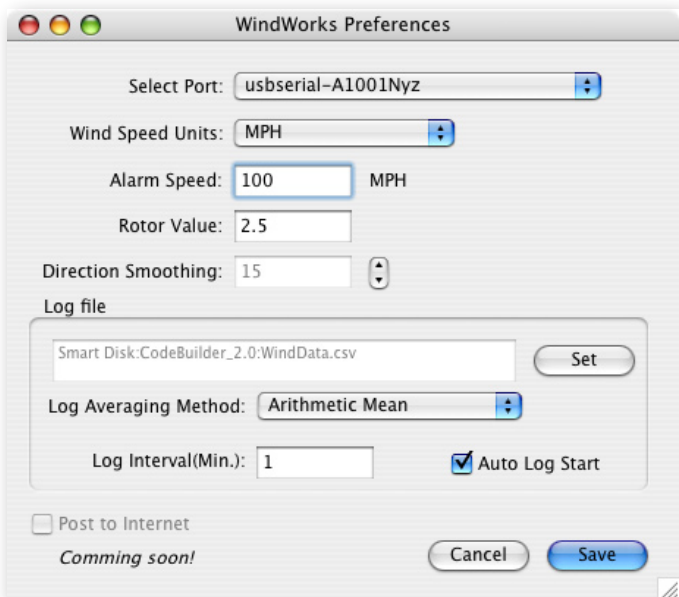
1. Select the USB Port that the WindWorks interface board is connected to. It will be named something like "usbserial-A1001Nyz" on the Mac and "COM3" on Windows.

> **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 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.

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 name and path for the data file. The default path will be in the WindWorks folder and the name will be "WindData.csv".

7. 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.)

8. 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.

9. Set Auto Log Start. This will auto start logging when you launch the application.

10. 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@inspeed.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 for the last 24 hours 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 below)

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

Second line contains column headers.

CurrentDateTime: date and time stamp for this entry

CurrentSpeed: speed at the above date and time

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)

AverageSpeed: the average of a reading per second over the log interval. An example: if log interval is set to 3 minutes than 3x60 = 180 samples so the average will be for 180 samples

MaxSpeed: max speed recorded during that interval

MinSpeed: min speed recorded during that interval

Third line contains sample data.

Fourth line contains log termination message.

Sample Data File

```
***** Logging Started 2008-04-14 23:41:54 Units = MPH  Log Interval = 1 min.  Averaging Method = Arithmetic Mean *****

CurrentDateTime,CurrentSpeed,DirectionText,DirectionDegrees,AverageSpeed,MaxSpeed,MinSpeed

2008-04-14 23:42:53,2.1,N/NW,335,2.1,30.1,0.0

***** Logging Stopped 2008-04-15 08:20:27 *****
```

Thank you and enjoy your WindWorks Kit!

inspeed.com