



MAL 800

Digital HVAC Anemometer

Instruction Manual



Disclaimer

The manufacturer assumes no responsibility for any consequences resulting from the use or misuse of this product. Product specifications and manual content are subject to change without prior notice.

Part Number: 7603161
GTIN: 6298043998239



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Introduction

The Marmonix MAL 800 Digital HVAC Anemometer is a precision instrument engineered for accurate measurement of wind velocity, air temperature, and airflow. Featuring a retractable handle rod up to 0.6 meters, it enables reliable measurements without directional constraints. Designed with stable performance, low power consumption, and dependable safety, this portable device offers professional functionality for HVAC testing, industrial monitoring, and environmental applications.

Applications

- **HVAC system testing:** ventilation, airflow balance, and duct efficiency.
- **Industrial environments monitoring** airflow in production lines and cleanrooms.
- **Environmental studies:** assessing wind speed, temperature, and air movement.
- **Agriculture and food storage:** ensuring proper ventilation and climate control.
- **Research and laboratory work:** precise airflow and temperature analysis.



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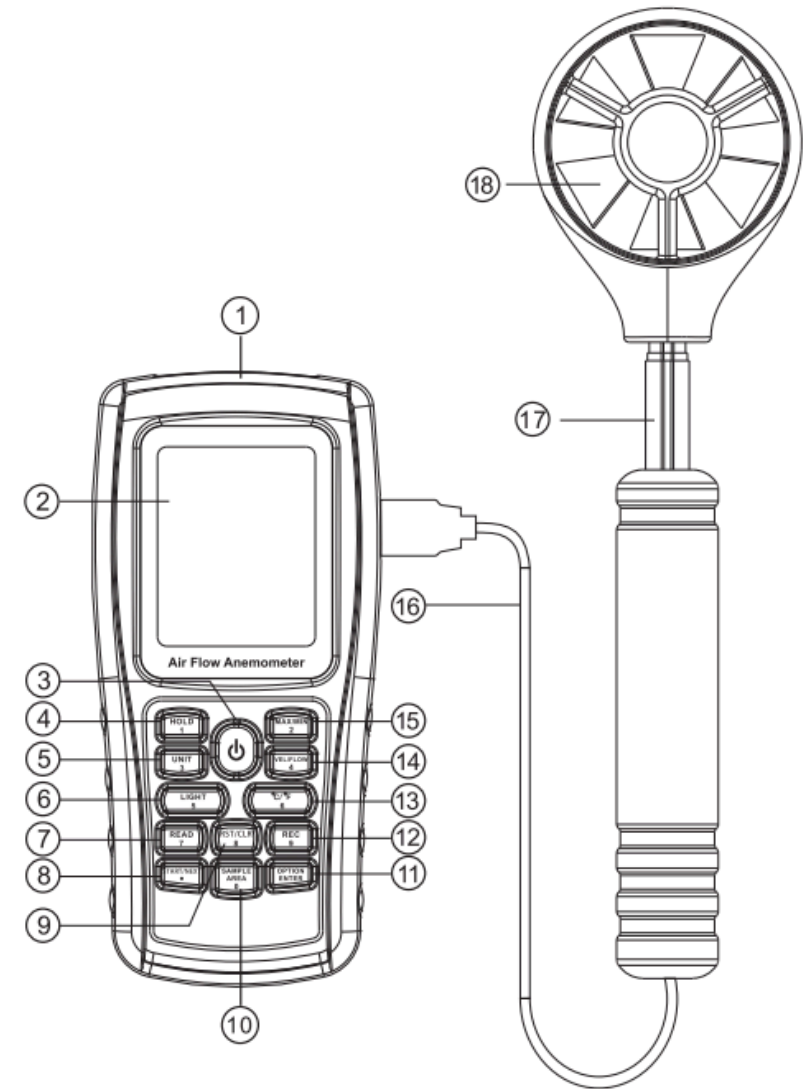















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Features

1. **Measurement of wind velocity, air temperature, and airflow** – Provides comprehensive monitoring for HVAC and environmental applications.
2. **Unit conversion for velocity, temperature, and flow parameters** – Supports multiple units (m/s, ft/min, knots, km/h, mph, °C/°F, CFM, CMM) for international use.
3. **Maximum and minimum wind velocity measurement** – Captures peak and lowest airflow values for performance analysis.
4. **Calculation of 2/3 Vmax and average airflow** – Delivers advanced airflow assessment for duct testing and system evaluation.
5. **Data hold, storage, and delete functions** – Allows freezing current readings, saving up to 500 records, and managing stored data efficiently.
6. **Low battery indication** – Alerts the user when battery power drops below safe operating levels.
7. **Automatic power-off after 10 minutes of inactivity** – Extends battery life during field use.
8. **Memory capacity: 500 records** – Enables long-term data logging without frequent downloads.
9. **Backlit display for low-light environments** – Ensures readability in dim or confined spaces.
10. **USB connectivity for PC data transfer** – Provides easy communication with software for analysis and reporting.
11. **Audible keypress alert** – Confirms input with a sound signal to reduce operational errors.
12. **Large LCD display for clear readings** – Improves visibility of velocity, temperature, and flow data.
13. **Retractable extension rod for flexible measurement** – Extends up to 0.6 m, allowing accurate readings without directional limitations.
14. **Auto power-off function**

Diagram of the unit



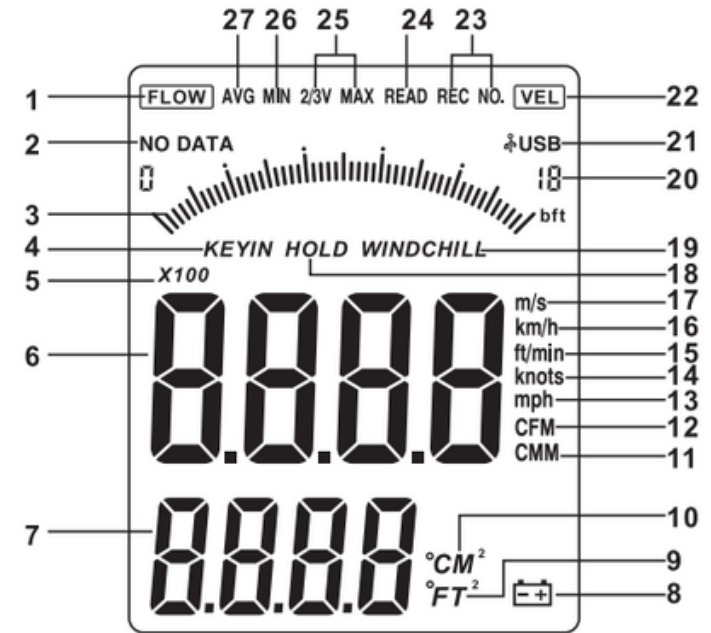
- 1). USB interface
- 2). LCD display
- 3).  : ON/ OFF key
- 4).  : Data holding key
- 5).  : Unit transform key
- 6).  : Backlight on/off key
- 7).  : Data read key
- 8).  : Measuring key for average value of wind flow
- 9).  : Reset key in READ mode/clear recorded
- 10).  : Duct area input and sampling time setting key
- 11).  : Wind flow AVG 2/3 MAX and figure input
- 12).  : Data record key
- 13).  : Temperature unit switch
- 14).  : Wind velocity/flow transform key
- 15).  : Max/Min value switch
- 16). Connecting wire
- 17). Retractable drag rod
- 18). Fan









Note:

The above key function descriptions provide only a brief introduction. For detailed guidance, please refer to the operation instructions section.

LCD Display



1.  : Air flow symbol
2.  : No data store symbol
3. Dynamic indicator bar of velocity or air flow
4.  : Enter duct area values symbol
5.  : Air multiplier
6. Wind velocity and air flow display area
7. Duct area display area/Wind temperature display
8.  : Low battery icon
9.  : Indicating duct area in square feet when in flow function ; °F is used to indicate wind temperature in metric;



10. **°CM²** : Indicating duct area in square meter in flow function, "°C " is used to indicate wind temperature in metric.
11. **CMM** : Wind flow unit (cube meter / minute)
12. **CFM** : Wind flow unit (cube foot / minute)
13. **mph** : Wind velocity unit (mile / hour)
14. **knots** : Wind velocity unit (sea mile / hour)
15. **ft/min** : Wind velocity unit (foot / minute)
16. **km/h** : Wind velocity unit (kilometer / hour)
17. **m/s** : Wind velocity unit (meter / second)
18. **m/s** : Data hold
19. **HOLD** : Windchill symbol
20. **WINDCHILL** : Velocity sampling rate; Sequential number display area of average wind flow
21. **USB** : When connecting PC with USB cable, this symbol appears
22. **VEL** : Wind velocity symbol
23. **REC NO.** : Recording the using number and signals
24. **2/3V MAX** : Read stored data symbol
25. **READ** : 2/3 of maximum value measurement (one of the wind flow measuring method)
26. **MIN** : Showing minimum values
27. **AVG** : When measuring average values (one of the wind flow measuring Method) this symbol appears.

Specifications

1. Wind Velocity Range:

Unit	Wind Velocity	Resolution	Lowest Point of start value	Accuracy
m/s	0.0-45.0	0.001	0.3	±3%±0.1
Ft/min	0.0-8800	0.01/0.1/1	60	±3%±20
Knots	0.0-88.0	0.01/0.01	0.6	±3%±0.2
Km/h	0.0-140.0	0.001	1.0	±3%±0.4
Mph	0.0-100	0.001/0.01	0.7	±3%±0.2

2. Wind flow range :

CMM: 0-999900 m³/min

CFM: 0-999900 ft³/min

Unit	Range	Resolution	Area
CFM(FT ³ /MIN)	0-999900	0.001-100	0.001-9999
CMM(M ³ /MIN)	0-999900	0.001-100	0.001-9999

3. Unit Conversion :

	m/s	Ft/min	Knots	Km/h	Mph
1m/s	1	196.87	1.944	3.60	2.24
1ft/min	0.00508	1	0.00987	0.01829	0.01138
1knots	0.5144	101.27	1	1.8519	1.1523
1km/h	0.2778	54.69	0.54	1	0.6222
1mph	0.4464	87.89	0.8679	1.6071	1

4. Air Temperature Range:

Wind Temperature

Unit	Scale	Resolution	Accuracy
°C	0.0-45.0	0.1	±1.0°C
°F	32.0-113.0	0.1	±1.8°F



5. Operation Conditions

	Temperature	Humidity
Host	0-50°C (32°F~122°F)	≤80% RH
Fan	0-60°C (32°F~140°F)	

6. Storage Conditions:

Temperature	-40°C~60°C (-40°F~140°F)
Humidity	≤80%RH

7. Power Supply: 4 × AAA 1.5 V alkaline batteries

8. Low Battery Indication: 4.4 V ± 0.2 V

9. Standby Current: ≤ 2 μA

10. Operating Current: ≤ 18 mA

11. Battery Life: Approx. 20 hours (continuous use)

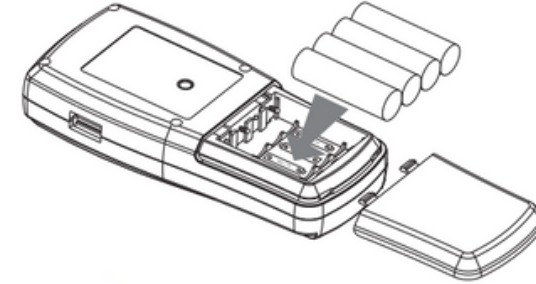
12. Dimensions:


- Meter: 77 × 36 × 164 mm
- Vane: 65 × 29 × 172 mm

13. Net Weight: 330 g (excluding batteries)

Measurement of Wind Velocity and Temperature

1. Open the battery compartment and insert the batteries correctly, as shown in the figure below.



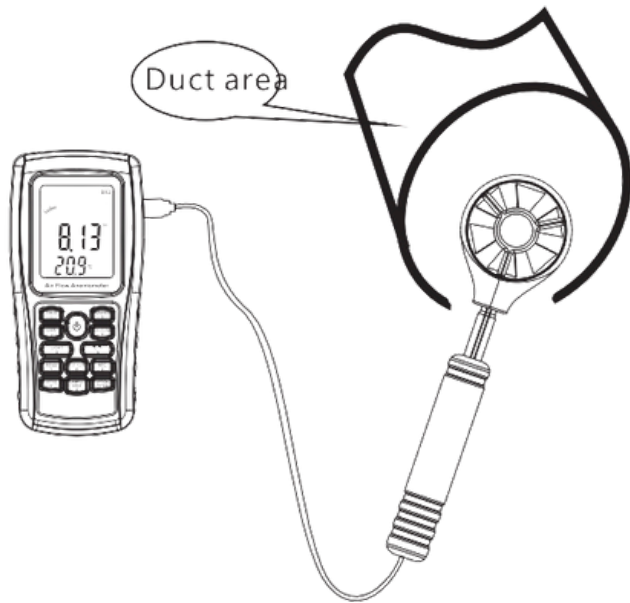
2. Press the []. All symbols will appear on the screen for 1 second, after which the unit enters wind velocity and temperature measurement mode. The LCD display will appear as shown in the following figure.



3. Selecting Units for Wind Velocity and Temperature:

1. Press the [UNIT] key to cycle through wind velocity units: m/s, km/h, ft/min, knots, mph. (Default: m/s)
2. Press the [°C/°F] key to toggle the temperature unit between °C and °F. (Default: °C)

4. Hold the anemometer by hand and position the vane in the airflow, ensuring the air direction aligns with the arrows marked on the inner wall of the vane. Do not press or deform the fan blades, as this may cause measurement inaccuracies.

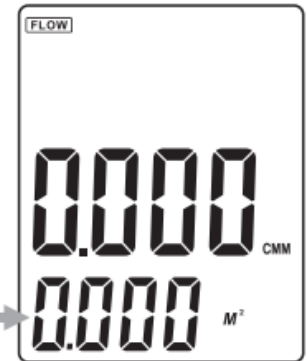


1. Wait 2 seconds for the unit to initialize.
2. Place the vane in the wind direction to obtain accurate data (temperature within 20 °C).
3. Press the Light key to toggle the backlight.
 - Backlight activates when the vane rotates or within 7 seconds of a key press.
 - Backlight turns off if no key is pressed for 7 seconds.
5. Wind / Air Temperature Measurement
 1. When measuring, the vane icon appears along with the TEMP symbol.
 2. Press the °C/°F key (key 6) to toggle between °C and °F.

Measurement of Wind flow

1. **Entering flow mode:** Press the [VEL/FLOW] key to enter FLOW mode. The LCD display will appear as shown in the following figure.

(If the area value has been set before, the last setting will be shown)



2. Selecting Wind Flow and Duct Area Units:

- a. Press the [UNIT] key to switch wind flow units between CMM and CFM. (Default: CMM)
- b. Press the [UNIT] key to switch area units between m² and ft². (Default: m²)
- c. The area unit automatically corresponds to the wind flow unit:
 - CMM → m²
 - CFM → ft²

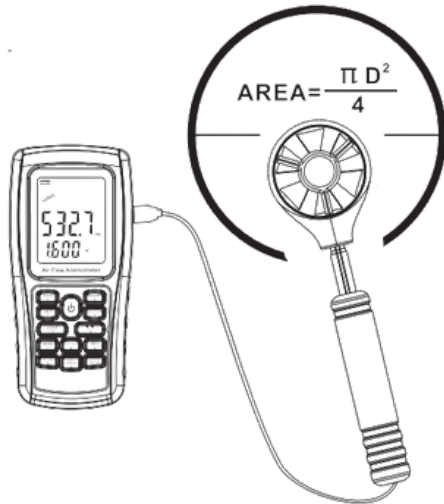
3. To set a new duct area:

- Press the [AREA] key; the four digits on the upper LCD will clear.
- Use the numeric keys to input the new area (e.g., 1.6).
- Press the [ENTER] key to confirm.
- The LCD will then display the updated setting as shown in the figure.





4. Using the Probe: Place the vane in the duct area to immediately measure the current wind flow value. The LCD will display as shown in the following figure.



5. Wind Flow Calculation Formula: Flow = Velocity × Free Area

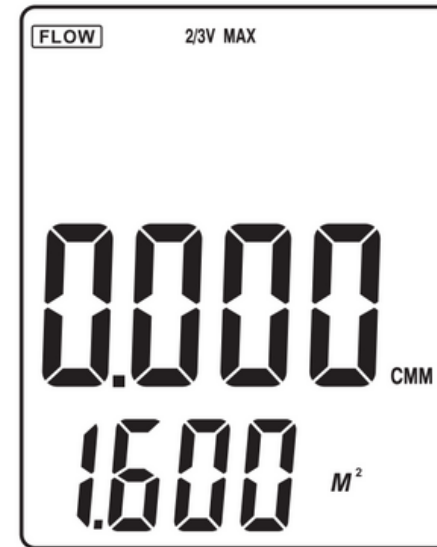
6. Testing Wind Velocity: The bar icon in the middle of the LCD changes in response to wind flow and velocity.

Notes:

- If the duct area is not entered, wind flow measurement cannot be performed.
- When wind flow exceeds 9999, the LCD displays ×10 or ×100, indicating the measured value is multiplied accordingly.

Measurement of 2/3 Vmax Wind Flow

- Press the [VEL/FLOW] key to enter FLOW mode.
- Select the desired unit with the [UNIT] key (e.g., CMM for wind flow, m² for area).
- Press the [AREA] key; the LCD clears. Enter the duct area (e.g., 1.6) using the numeric keys, then press [ENTER] to confirm.
- Press the [OPTION] key to select 2/3 Vmax mode. The LCD will display as shown in the following figure.



5. Aim the vane at the duct area to measure the 2/3 Vmax wind flow immediately. Press the [OPTION] key again to exit 2/3 Vmax mode.

6. 2/3 Vmax Wind Flow Formula: Flow = (2/3) × Maximum Wind Velocity × Duct Area



Measurement of Average Wind Flow

1. Press the [VEL/FLOW] key to enter FLOW mode.
2. Select the desired unit with the [UNIT] key (e.g., CMM for wind flow, m² for area).
3. Press the [AREA] key; the LCD clears. Input the duct area (e.g., 1.6) using the numeric keys, then press [ENTER] to confirm.
4. Press the [OPTION] key to select AVG mode. The LCD will display as shown in the following figure.



5. Aim the vane at the selected point of the duct area and press the [NEXT] key. A serial number will appear in the lower-right corner of the LCD, and the first group of wind flow values will be measured. The display will appear as shown in the following figure.



6. Select the next test point and press the [NEXT] key to measure the second group of average wind flow values. Repeat this procedure for up to 12 groups of average wind flow measurements. The LCD will display as shown in the following figure (TFLOW AVG).



7. Press the [OPTION] key again to exit the average wind flow measurement mode.

8. Average Wind Flow Formula

$$\text{Flow} = (1 / N) \times \Sigma (\text{Velocity} \times \text{Free Area})$$

Note

The average value is displayed only by pressing the [NEXT] key. If airflow is present in the duct area, the LCD will show the measured average wind flow.



Max/Min Measurement

- During wind flow or velocity measurement, press the [MAX/MIN] key to display maximum and minimum values. Press the key again to exit.

Example:

1. When measuring the maximum wind velocity, MAX appears on the upper LCD, as shown in the following figure.



2. When measuring the minimum wind velocity, MIN appears on the upper LCD, as shown in the following figure.



Note

The Max/Min measurement procedure for wind flow is identical to that for wind velocity.

Data Holding / Storage / Reading / Clearing

• Data Hold

- During wind velocity or flow measurement, press the [HOLD] key to freeze the reading.

- Press [HOLD] again to return to normal operation.

• Data Storage

1. Instantaneous (One-Shot) Storage:

- In VEL mode, press [SAMPLE] and set the sampling rate to 0.

- Press [ENTER] to confirm.

- Each time [REC] is pressed, the current reading is stored.

2. Automatic Storage:

- In VEL mode, press [SAMPLE], input a sampling rate (1-99 seconds) using the numeric keys, then press [ENTER] to confirm.

- Press [REC] to start automatic storage. The REC icon appears on the LCD.

- Press [REC] again to stop data storage.

- Stop Recording: Press [REC] to end recording at any time.

• Reading Stored Data

- Press the [READ] key to review stored data sequentially. The LCD first displays the serial number, followed by the data.

- Press [RST] to return to normal operation. as shown in following figure:



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- **Reading Stored Data (Random Access)**

- In READ mode, press the [SAMPLE] key and enter the record number using the numeric keys.

- Press [ENTER] to display the selected data.

- Press [RESET] to exit.

- **Clearing Stored Data**

- Press and hold the [CLEAR] key for 5 seconds.

- CRL will appear on the LCD, confirming that all stored data has been erased. As shown in following figure :



Note

- a. In instantaneous storage mode, press [SAMPLE] and set the sampling rate to 0 seconds, then press [ENTER] to confirm.
- b. Press [REC] to complete recording; otherwise, the data will not be saved.
- c. Maximum storage capacity: 500 readings.
- d. If the selected record number exceeds the total stored, the LCD will display the last stored reading.

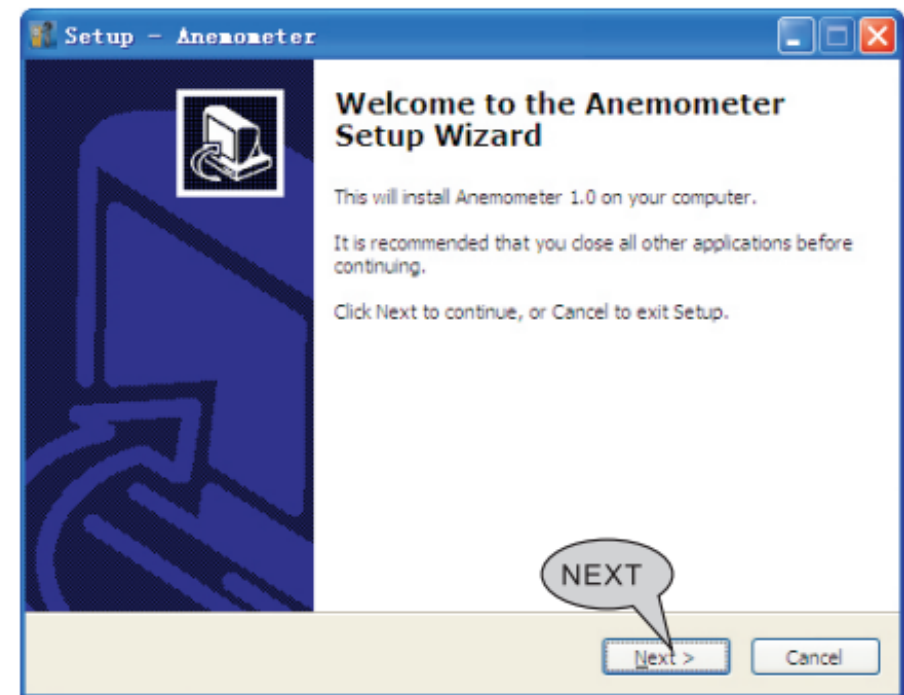
Connection with PC

1. Computer Requirements

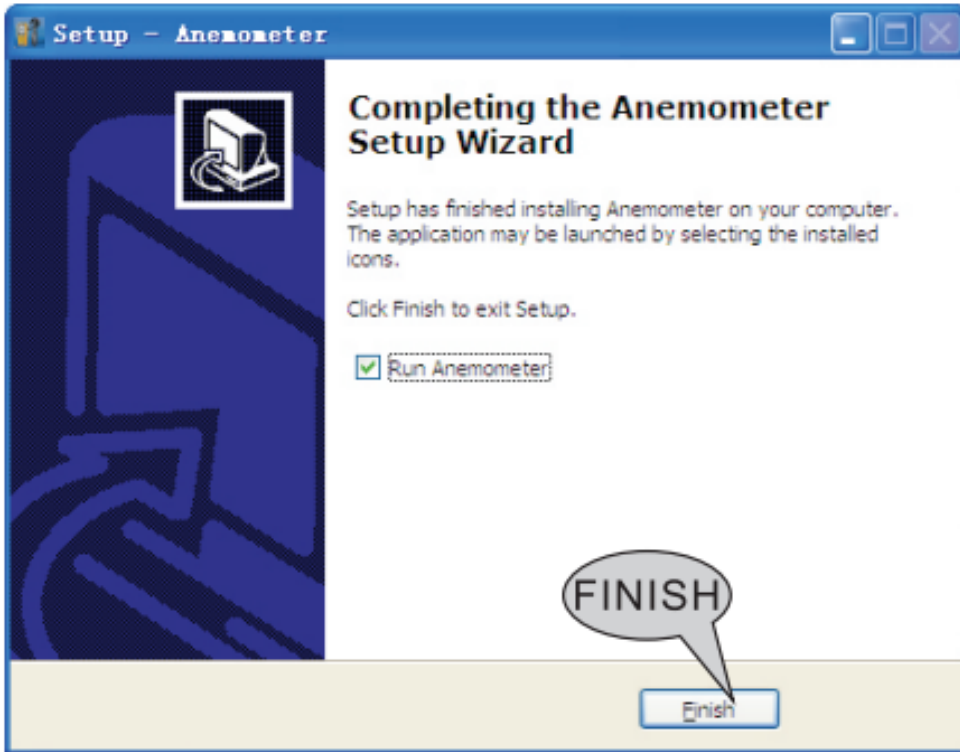
- CPU: Pentium 600 MHz or higher
- One available USB interface
- Monitor resolution: minimum 800 × 600 (or higher), color mode
- Available memory: at least 8 MB
- Available disk space: at least 50 MB
- Operating system: Microsoft Windows 98 / ME / 2000 / XP Home / XP Professional (32-bit)

2. Software Installation

- Insert the supplied disc into the CD drive.
- Open the disc drive folder and double-click Anemometer setup.exe.
- Follow the installation wizard and click NEXT to continue, as shown in the following figure.



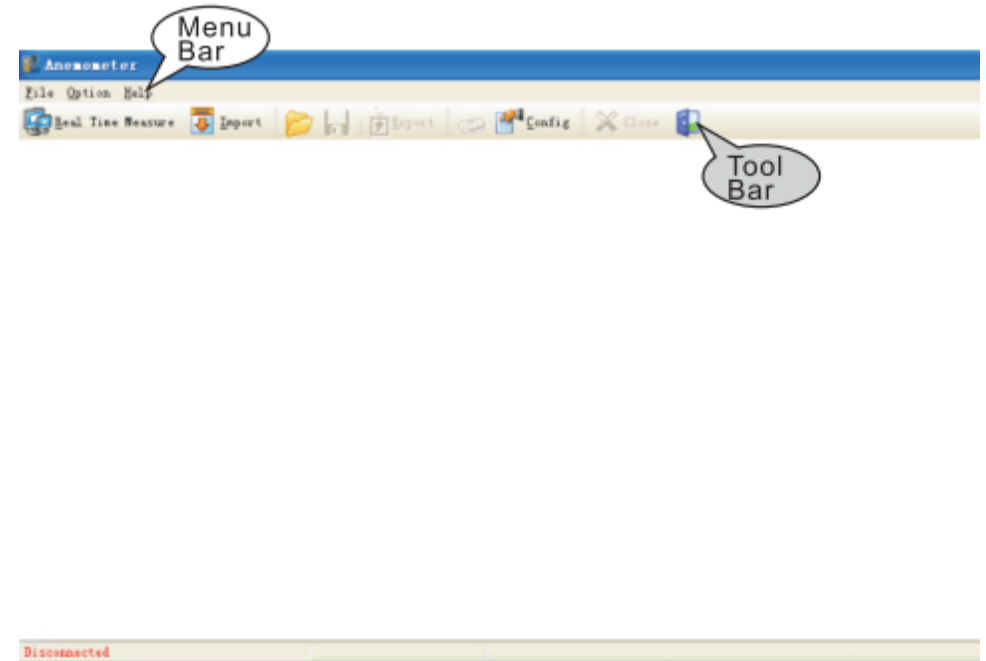
- Follow the InstallShield Wizard by clicking NEXT, then select Create a desktop icon.
- When Finish appears, select Run Anemometer to complete the software installation, as shown in the figure below.



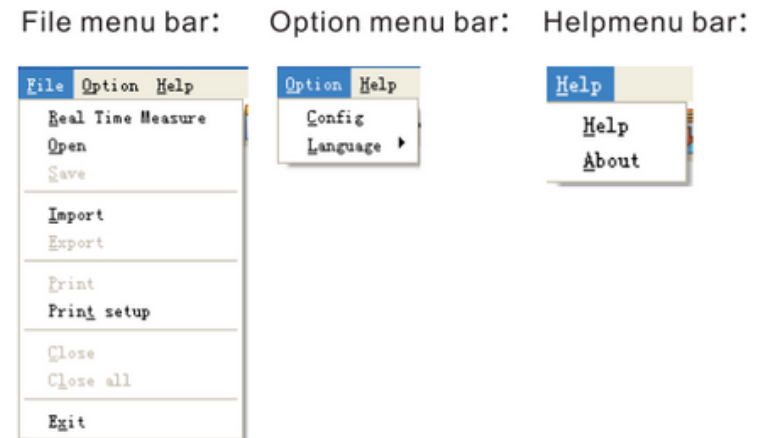
Note

1. To launch the software, double-click the desktop shortcut. Alternatively, navigate through: Start → Programs → Anemometer.
2. To uninstall, open Control Panel, select Add/Remove Programs, choose Anemometer from the list, and click Delete.

3. Software interface :



4. The software menu layout is shown in the following figure.












Order	Order function
Real time measure	Real time data measurement, the measured data will be real time as shown on the computer
Open	Open measurement data file that is saved as the LAB format
Save	Save real time measurement data
Import	Import data stored in the anemometer to computer
Export	Export the saved data to Excel.
Printe	Printer setup
Print Setup	Print data sheet

Remark

The software supports English, Traditional Chinese, and Simplified Chinese. The default language is English. Switching from English to Simplified or Traditional Chinese can be done directly. To switch from Simplified or Traditional Chinese back to English, the software must be restarted.


5. The functions of the toolbar are illustrated in the following figure.



Button	Function
	Real time data measurement, the measured data will be real time as shown on the computer.
	Import data stored in the anemometer to computer
	Open measurement data file that is saved as the LAB format
	Save real time measurement data
	Export the saved data to Excel.
	Print the recorded data
	System setup
	System information
	Close the software

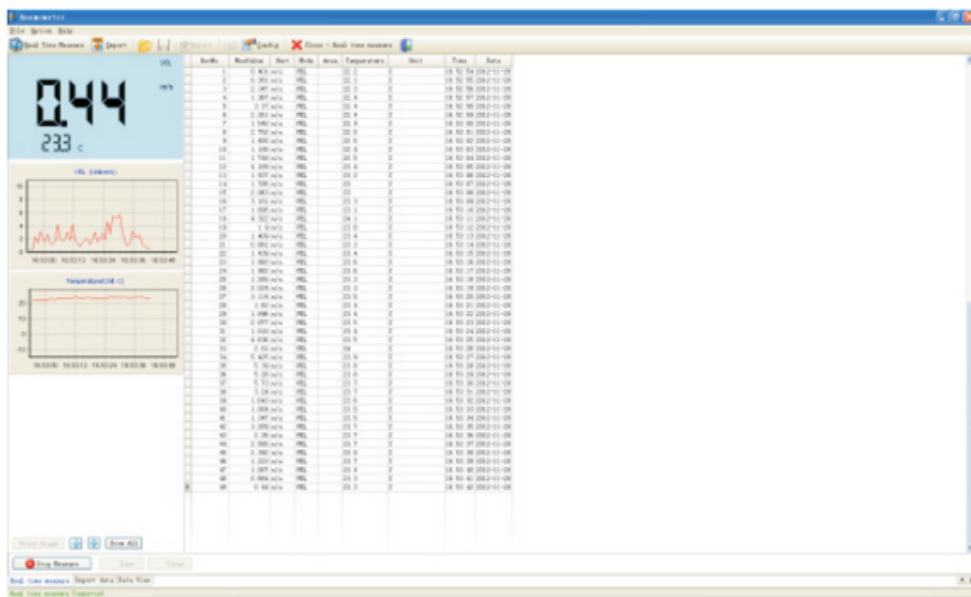


5. Insert one end of the connecting cable into the USB interface of the top anemometer host; Insert the other end of the cable into a free USB port on the computer,

- If the unit connect with PC: LCD will display & USB symbol:  USB
- If the unit dis-connect with PC:& USB symbol will not shown.

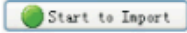






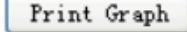
6. Real time measurement:

- Click on "File/Real Time Measure" or tool bar button to enter real-time measurement mode; Press "Start to Measure" button to start measurement and record data, shown in the following figure:




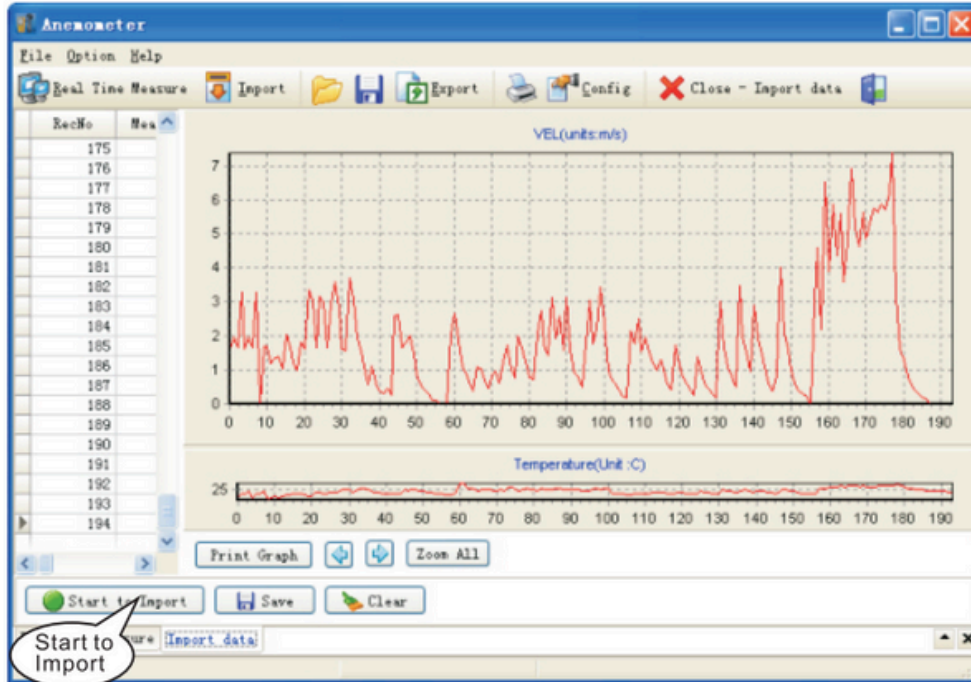
- To stop real-time measurement, click on "Stop Measure".

- Button introduction:



Button	Function
	Click to start real time measurement
	Click to stop real time measurement
	Click to clear out real time measured data
	Click to store real time measured data, input file name in pop-up window, click to save, then also may click FILE\SAVE. (Saved as LAB format)
	Click to display all wind velocity and temperature wave graphic
	Click to move Wind Velocity and Temperature left side
	Click to move Wind Velocity and Temperature right side
	Click it to print right wind velocity and temperature wave graphic

7. Downloading Measurement Data

- Select Import Data from the File menu or click the Import Data button  on the toolbar to open the data download interface. Click the Start to Import button at the bottom to transfer the stored data to the computer, as shown in the following figure.



- Button introduction:

Button	Function
	Click to download data from anemometer. In download process, please don't switch over the picture in order to avoid appearing over time mistake "Over Time".
	Click to save the downloaded data, input file name in pop-up window, click to save then. (Saved as LAB format)

Troubleshooting

If the unit is not operating correctly, check the following:

1. **Blank Screen :** Verify that the batteries are installed correctly. Open the battery compartment on the rear of the unit and ensure the "+" and "-" symbols match the markings inside.
2. **PC Connection Failure:** Check the USB cable. If defective, replace with a new cable.
3. **Incorrect Wind Flow Reading:** Ensure the vane is not blocked or obstructed.
4. **Incorrect Wind Temperature Reading:** Check if the temperature sensor has become loose or damaged.
5. **Data Reading Issues:** Confirm the device is operating within the specified temperature and humidity conditions.

Note

When not connected to a PC, the unit will automatically power off after 10 minutes of inactivity.

Maintenance & Warranty

Maintenance

1. Battery Replacement and Care

- a. Remove the battery if the unit will not be used for extended periods to prevent leakage that may damage the compartment and electrodes.
- b. If the low battery symbol appears on the LCD, replace the battery immediately to avoid inaccurate readings or leakage that may severely damage the unit. The battery compartment is located on the lower rear of the unit. Open the cover, replace the old battery with a new one (observe correct polarity), and close the cover securely.

2. Cleaning the Casing

- Do not use alcohol or thinner, as these may damage the LCD surface. Clean the casing lightly with a small amount of clean water.
- Avoid impact and operation in humid conditions.

3. Storage and Operating Conditions

Do not store or use the unit in environments subject to:

- a. Water splashes or excessive dust
- b. Air containing high salt or sulfur content
- c. Air with corrosive gases or chemicals
- d. High temperature or humidity (above 50 °C, 90%) or direct sunlight

Warranty

For warranty terms, refer to the warranty card provided.

The manufacturer assumes no liability for:

- Transportation damage
- Incorrect use or operation
- Unauthorized manipulation, alteration, or repair attempts
- Claims without a valid warranty card or invoice



Specific Declarations

- a. Product design, manual updates, and repairs must be performed only by authorized technicians. Do not attempt alterations or unauthorized repairs.
- b. Battery disposal must comply with local laws and regulations.
- c. The manufacturer accepts no responsibility for the use of this product's output as direct or indirect evidence.