HOT WIRE ANEMOMETER
INSTRUCTION MANUAL

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# CONTENTS

1、 Before Use Notice

Check up

Thank you for purchasing our Hot Wire Anemometer! Carefully unpack your kit and ensure that you have the following Items .In case that any item is missing or if you find any mismatch or damage ,promptly contact your local dealer .

○ Hot Wire Anemometer unit-------------------------- 1pcs

○ Yellow sticker pockt -------------------------------- 1pcs

○ Probe-- 1pcs

○ Software Disc For Anemometer ------------------- 1pcs

○ USB Computer connecting cable ---------------- 1pcs

○ 1.5V AAA alkaline battery ------------------------ 4pcs

○ English Instruction Manual --------------------------1pcs

○ Cloth pouch --1pcs

Features

- Measurement of wind velocity, temperature and flow
- Unit conversion of wind velocity, temperature and flow
- Measurement of maximum and minimum wind velocity
- Measurement of 2/3 Vmax and average wind flow
- Data holding, storing and deleting function
- Low battery indicating function
- Auto power off function (power off automatically if no further operation for 10 minutes)
- Memory of 350 records
- Backlight
- Connecting to PC with USB cable
- Audio key pressing alert
- Large LCD display

Diagram of the unit
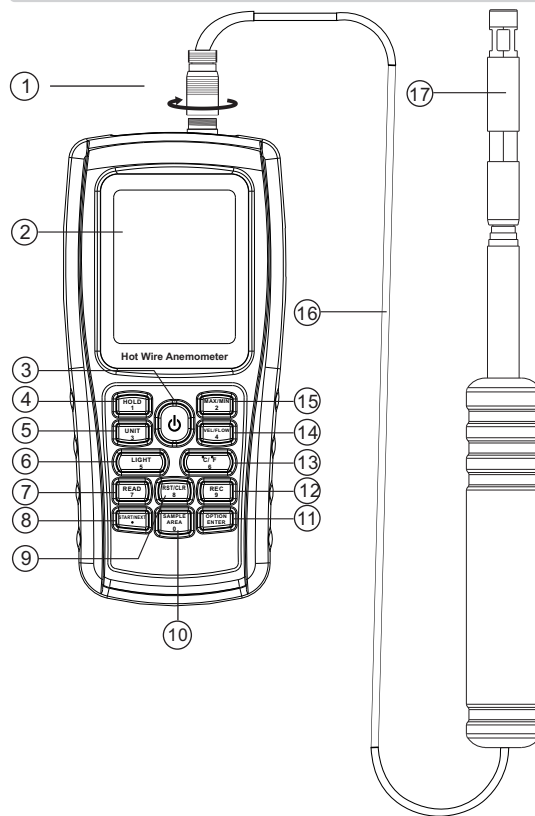
1).Connector (With direction indicator)

2). LCD display

3). ⏻ : ON/ OFF key

4). [HOLD 1] :Data holding key

5). [UNIT 3] :Unit transform key

6). [LIGHT 5] :Backlight on/off key

7). [READ 7] :Data read key

8). [START/NEXT .] :Measuring key for average value of wind flow

9). [RST/CLR 8] :Reset key in READ mode/clear recorded

10). [SAMPLE AREA 0] :Duct area input and sampling time setting key

11). [OPTION ENTER] :Wind flow AVG 2/3 MAX and figure input

12). [REC 9] :Data record key

13). [°C/°F 6] :Temperature unit switch

14). [VEL/FLOW 4] :Wind velocity/flow transform key

15). [MAX/MIN 2] :Max/Min value switch

16). Connecting wire

17). Probe

📄 NOTE:
   Aforesaid key function descriptions is brief
   introduction.
   pls read operation instructions parts for details.

LCD Display

27 26 25 24 23

1 — FLOW AVG MIN 2/3V MAX READ REC NO. VEL — 22
2 — NO DATA — USB — 21
   0 — 18 — 20
3 —
4 — KEYIN HOLD WINDCHILL — 19
5 — X100 — 18
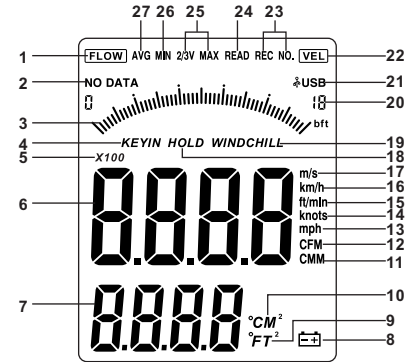   m/s — 17
                              km/h — 16
                              ft/min — 15
6 — 8.8.8.8. knots — 14
                              mph — 13
                              CFM — 12
                              CMM — 11
                                            — 10
7 — 8.8.8.8. °CM² — 9
              °FT² — 8

1. FLOW : Air flow symbol

2. NO DATA : No data store symbol

3. Dynamic indicator bar of velocity or air flow

4. KEYIN : Enter duct area values symbol

5. X100 : Air multiplier

6. Wind velocity and air flow display area

7. Duct area display area/Wind temperature display

8. ⊟ : Low battery icon

9. °FT² : Indicating duct area in square feet
   when in flow function ; °F is used to indicate
   wind temperature in metric;

10. $°CM^2$: Indicating duct area in square meter in flow
function, "℃ " 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. HOLD : Data hold

19. WINDCHILL : Chill index

20. 18 : Data-sampling interval recorded

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. READ : Read stored data symbol

25. 2/3V MAX : 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	Accouracy
m/s	0.0-30.0	0.001	0.3	±3%±0.1
Ft/min	0.0-5860	0.01/0.1/1	60	±3%±20
Knots	0.0-55.0	0.01/0.01	0.6	±3%±0.2
Km/h	0.0-90.0	0.001	1.0	±3%±0.4
Mph	0.0-65	0.001/0.01	0.7	±3%±0.2

2. Wind flow range ：
CMM：0-999900m^3 /min
CFM：0-999900 ft^3 /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 Conversatin ：

	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
℃	0.0-45.0	0.1	±1.0℃
℉	32.0-113.0	0.1	±1.8℉

5. Operation Conditions :

	Temperature	Humidity
Host	0-50℃ (32℉~122℉)	≤80% RH
Sensor	0-60℃ (32℉~140℉)	

6. Storage Conditions :

Temperature	-40℃~60℃ (-40℉~140℉)
Humidity	≤80%RH

7、Power supply : AAA 1.5V Alkaline battery *4

8、Low battery indicating : 4V±0.2V

9、Stand by current 0uA

10、Operating Current ≤60mA

11、Battery use life :20H (Continuous Use)

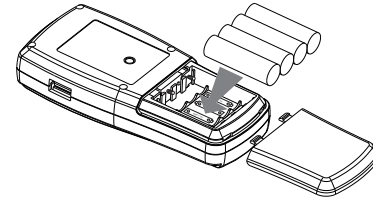12、Dimensions:

   Meter :77x36x164mm

  Probe: 30.5x30.5x305MM

      30.5x30.5x1000MM(Elongated)

13、Net Weight : 330G (Not Included Battery)

2´ Operation Instruction

Measurement of Wind Velocity and Temperature

○ Open the battery door , and install the batteries properly as shown in following figure:

○ Press The " ⏻ " key, all the symbols will be shown on the screen for 1 second, then the unit goes into current wind velocity and temperature measuring mode, the LCD screen as shown in following figure:

○ Select your desired wind velocity and temperature unit :
1). Press the " UNIT " key, the wind flow unit changes among m/s 、km/h 、ft/min、knots、mph,(default unit is m/s);
2). Press the " ℃/℉ " ，the temperature changes between ℃ / ℉ mode(defaulted as ℃).

○ Hold the Anemometer with your hand , place the probe
in the air flow with the air direction matching the direction
of the arrows printed on the inner walls of the probe (
please do not extrude the sensor tip, which may cause
the inaccuracy measurement)

Duct area
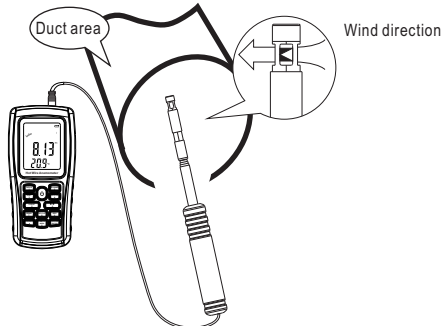
Wind direction

1). Wait for 2 seconds with the unit is ready for use.
2). Place the probe in the same direction of the wind to
capture the accurate data ,temperature within 20℃
3). Press the LIGHT key to activate or deactivate the
backlight. In measuring, press the LIGHT key to
light up the LED and the LED will be turned off within
7 seconds if there is no further operation on the keys.

○ Wind /Air Temperature Measurement:
1). Small probe pattern will showing along with the
display of "TEMP" symbol.
2). Press button ℃/℉ (or number 6 key) to Switch ℃/℉ .

Measurement of Windflow

○ Press the "VEL/FLOW" key to get into "FLOW" mode,
the LCD screen as shown in following figure :
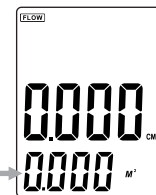
(If the area value has
been set before, the
last setting will be shown)→

FLOW

0.000 CMM

0.000 M²

○ Select your desired unit of wind flow and duct area:
a. Press the "UNIT" key, the wind flow unit will convert
between CMM and CFM (the defaulted unit is CMM)
b. Press the "UNIT" key, the area unit will convert
between M^2 and FT^2 . (the defaulted unit is M^2)
c. Area unit: M^2 and FT^2 will convert accordingly with
the conversion of the wind flow unit.
If wind flow unit is CMM, the area unit will be M^2;
If wind flow unit is CFM, the area unit will be FT^2.

○ Press the "AREA " key, the 4 digitals on the upper
LCD disappears at this time press numeric
keys to input a new duct area, such as 1.6, then press
the "ENTER" key to confirm. At this time the LCD
screen as shown in following figure:
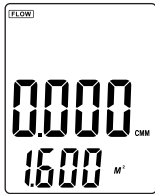
○ Place the probe in the duct area to measure current
wind flow value right away.
As shown in following figure:

$$AREA = \frac{\pi D^2}{4}$$
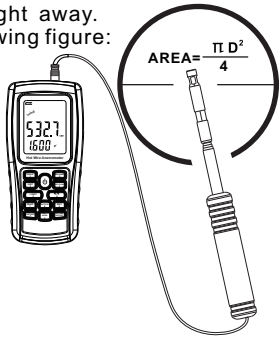
○ Wind Flow Calculate Formula : Flow =velocity *(Free Area)
○ Testing Wind velocity : The bar icon (showing on
the middle of LCD)changes accordingly with wind
Flow/Velocity

📋 Note:
   a. failing to enter the duct area leads to failure of
      measurement of the wind flow.
   b. If wind flow is larger than 9999, the LCD screen
      will show x10 or x100, indicating the measured value
   multiplied by x10 or x100.

Measurement of 2/3 Vmax Wind Flow

○ Press the "VEL/FLOW" key to enter into "FLOW" mode;
○ Select your desired unit by pressing the UNIT key,for
example: select CMM for wind flow unit,
M^2 for area unit;
○ Press the "AREA" key,letter on the LCD will disappe-
ared at this time you can input duct area, such as 1.6,
press "ENTER" key to confirm;
○ Press again the "OPTION" key to select "2/3 Vmax",
here the LCD screen as shown in following figure:
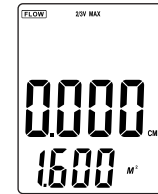
○ Aim the probe of the attached unit at duct area properly,
take measurement of 2/3 V max wind flow right away,
press again the "OPTION" key exit to measurement
of 2/3 max wind flow.
2/3 Max Wind flow calculate formula:
○ FLOW =2/3*Max wind Velocity *duct Area

Measurement Of Average Wind Flow

- Press the "VEL/FLOW" key to get into "FLOW" mode;
- Select your desired unit by pressing the UNIT key,for example: select CMM for wind flow unit, M^2 for area unit;
- Press the "AREA" key, letter on the LCD will disappeared at this time you can input duct area, such as 1.6, press "ENTER" key confirm;
- Press again the "OPTION" key to select "AVG", here the LCD screen as shown in following figure:
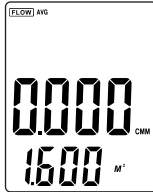

- Aim the probe at certain point of duct area properly, press the "NEXT" key, on the right bottom of the LCD will show serial number, in the meantime you can take measurement of the first group wind flow values. As shown in following figure:

- Then select another test point, press the NEXT key to take measurement of the second group average wind flow values.
  Repeat above steps to measure as many as 12 groups of average wind flow values. As shown in following figure:
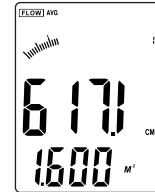
- Once again press the "OPTION" key exit to measurement of average wind flow.
- Average Wind flow calculate formula
  Flow =1/N$\sum$ (Velocity)*(free Area)

📋 Note
The average vaule only displays by pressing NEXT key ,if there is wind in the duct Area ,then the LCD Screen will shows the measured Average Wind flow

Max and min measurement

○ In wind flow and velocity measuring process, press the "MAX/MIN" key to obtain the maximum and minimum values, press again to exit. For example:

1).When measuring maximum value of wind velocity, a "MAX" will be shown on the upper LCD screen, as shown in following figure:

2). When measuring minimum value of wind velocity, a "MIN" will be shown on the upper LCD screen, as shown in following figure:
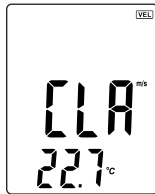

📄Note:
Operation of Max/Min wind flow measurement is the same as wind velocity.

Date holding /Storeage/Reading and clearing

○ Data holding:
When taking measurement of wind velocity and flow, press the "HOLD" key to freeze the Data , press the "HOLD" key again return to normal operation.

○ Data storage:
1). Instantaneous (one-shot) data storage: under "VEL" state, set the sampling rate=0 by pressing "SAMPLE" key and in put a "0" sampling time and then press "ENTER". Now, each time "REC" is pressed, the present reading will be stored.
2). Automatic data storage: under "VEL" state, press the " SAMPLE" key and input sampling rate, (the sampling rate from 1~99 seconds using the numeric keys to enter your desire rate,) then press the "ENTER" key to confirm. Press the "REC" key to begin storing readings in every sampling rate. The "REC" icon will appear on the LCD indicating the data storage function being activated. Press again the "REC"key to finish data storage.
3). Press "REC" Key to stop recording.

○ Reading data stored sequentially:
1). Press the "READ" key, you can read the stored data in memory sequentially, the LCD will first shows serial number then shows the data.
2). Press "RST" key to return normal operation. As shown in following figure:
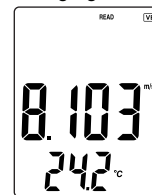
○ Reading Data stored In memory Ramdomly:
  On read Status ,Press the "SAMPLE" Key and enter the
  number of the record in questions and press "ENTER"
  Key then the desired data will be displayed Press "
  RESET" Key to exit As shown in following figure:

○ Clearing the Stored data:
  Press down the "CLEAR" Key for 5 seconds then
  CRL appears on the LCDindicating , all the stored
 data being Cleared. As shown in following figure:

```
┌─────────────────────┐
│                 VEL │
│                     │
│   ┌─┐ ┌  ┌─┐        │
│   │ │ │  │ │  m/s   │
│   └─┘ └─ └─┘        │
│    ┌─┐ ┌─┐          │
│    ┌─┘  └─┤  ℃      │
│    └──    │          │
└─────────────────────┘
```

📑 **Note :**
 **a**.In instantaneous data storage mode, you should
     first press "SAMPLE" Key and input "0" second ,
     then press "ENTER" to finish the rate set up.
  b.Press the "REC" Key to finish the recording,
     otherwise the recording will be invalid.
  c.The maximum number of readings can be stored 500.
  d.If your reading number is bigger than the total
     quantity of data stored in memory ,the LCD will
     shows the last stored.

Connection With Pc

1). Requirement of computer configuration:
○ CPU : Pentium 600MHZ Or above ;
○ One free available USB Connecting Interface;
○ The lowest screen resolution of monitor is 800*600 (
  or much higher),color mode;
○ At least 8MB available memory;
○ At least 50MB available disk memory;
○ Operation system : MICROSOFT WINDOWS 98/ME/
  2000/XP/7

2). Install the software from the disc:
  Place the attached Disc in your disc driver open the
  disc driver plate symbol , double click the "
  Anemometer setup .exe " .To enter into Program
  installation window, click "NEXT" , as show in
 following figure:
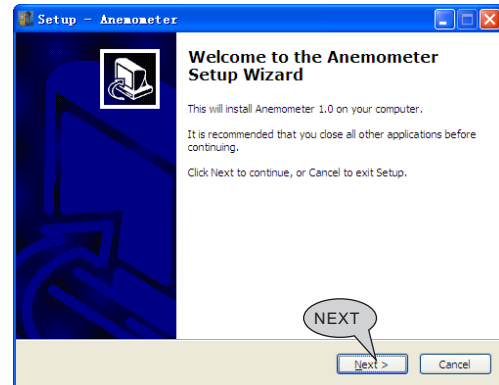
○ Please follow the install shield wizard and click on "NEXT" , and select " Create a desktop icon " .

○ Until "Finish" is shown , select "Run Anemometer" to complet software installation, as figure below :
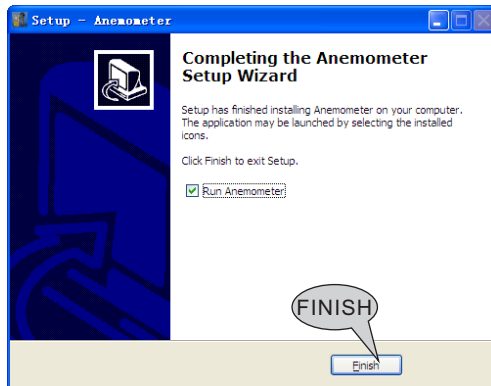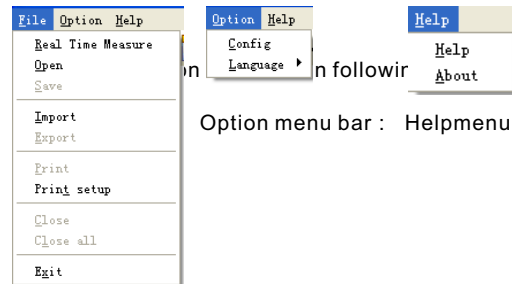
NOTE:
1).Double click the software shortcut on the desktop
(to start from menu, the route is Start /Programme /
Anemometer) ;
2). If you want to delete this software ,please open "
Controlling Panel " then double click "add/delete
program" Choose "Anemometer" on the list then
click the "delete" button.

-20-

3). Software interface:

○
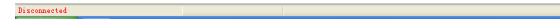
Option menu bar :   Helpmenu bar :

-21-

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 :

Language in : English / Traditional Chinese/ Simplified Chinese.The default setting is in English, from English into Simplified Chinese or Traditional Chinese can be setting directly; If change Simplified Chinese or Traditional Chinese into English, you need to re-start running the software.

◍ Tool bar introduction as shown in 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

4). Insert one end of the connecting cable into the USB
interface of the top anemometer host;
Insert other end of the connecting cable into free
interface port of on the computer back,
○ If the unit connect with PC: LCD will display ⚓**USB**
symbol；
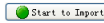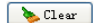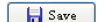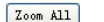○ If the unit dis-connect with PC:⚓**USB** symbol will not
shown.
5). Real time measurement :
○ Click on "File/Real Time Measure" or tool bar
button to entre real time measurement mode; Press
"Start to Measure" button to start measurement and
record data, shown as follow figure:
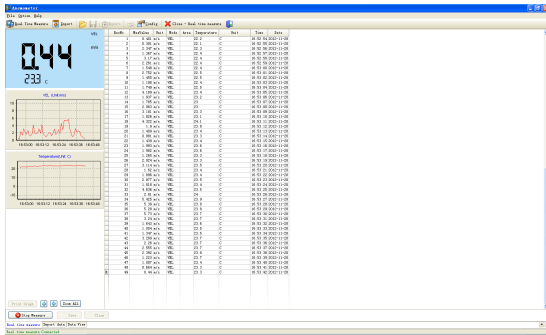
○ To stop real time measurement, click on "Stop Measure".

○ Button introduction:

Button	Function
Start to Import	Click to start real time measurement
Stop Measure	Click to stop real time measurement
Clear	Click to clear out real time measured data
Save	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)
Zoom All	Click to display all wind velocity and temperature wave graphic
←	Click to move Wind Velocity and Temperture left side
→	Click to move Wind Velocity and Temperture riqht side
Print Graph	Click it to print riqht wind velocity and temperature wave graphic

6). Download of measurement data:
Click the 'Import Data" in "File" menu bar or Import Data button 📥 on tool bar will enter download contact interface of measured data, click the start to Import button on bottom to import the stored data into computer, as shown in following figure:
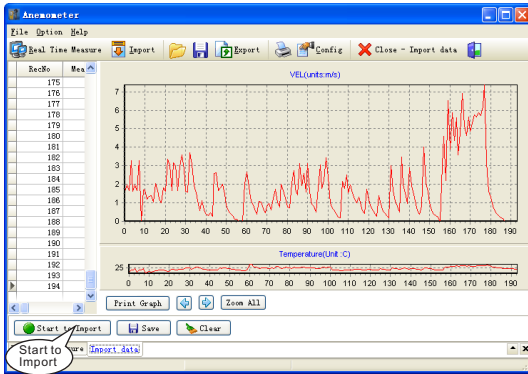
○ Button introduction:

BUTTON	Function
📥 Import	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".
💾 Save	Click to save the downloaded data, input file name in pop-up window, click to save then. (Saved as LAB format)

3. Other Items

Familiar trouble shooting

The following is a list of actions to be taken if the unit is not working properly:

1). Screen is blank
Check the battery is inserted correctly. Open the battery door on the bottom rear of the unit. The "+" "-" symbols on the battery should match the corresponding "+" "-" symbols on the inside of the battery compartment.

2). If the unit can not connect to PC normally, please check the USB cable is OK, if the cable can not be used formally, please replace for a new one.

3). If the unit can not read the wind flow value properly, please check if the probe is block or not.

4). If the unit can not read the wind temperature value properly, please check if the heat resistor is fall off or damaged by manual.

5). If the unit can not read data properly, please check it is operated under the rule temperature and humidity situation.

📄 Note:
When not connecting to PC, the unit will power off automatically after 10 minutes if no any operation after power on.

Maintenance & Warranty

1). Maintenance:

○ Replacing the battery and product maintenance:
  a. Remove the battery from the unit if it is not required for extended periods of time in order to avoid damage to the battery compartment and the electrode resulting from a leaking battery.
  b. After power on, if a symbol " 🔋 " appears on the LCD, indicating that you should replace the battery in order to avoid inaccurate measuring reading. Otherwise the battery is very possible leak that will seriously damage the unit life.
  The battery compartment is on the down rear of the unit, open the battery door, replace the old battery for new battery (notice the battery polarity), close the battery door.
○ Cleaning the casing：
○ Never use alcohol or thinner to clean the unit casing, which will especially erode the LCD surface; just clean the unit lightly as needed with little clean water.
○ Never impact the unit or use on humidity condition.
○ Do not store or use the unit in following locations where the unit may be subject to:
  a. Splashes of water or high levels of dust.
  b. Air with high salt or sulphur content.
  c. Air with other gases or chemical materials.
  d. High temperature or humidity (above50℃, 90%,) or direct sunlight.

2). Warranty:

About relative warranties please read provided warranty card.

We disclaim any liability due to: transportation damages; incorrect use or operation; manipulation, alterations or repair attempts; without warranty card, invoice.

3). Specific Declarations:
  a. The product design and the manual updating, repairing by technician authorized by us, do not try any alternations or repair attempts.
  b. Disposal of battery should in accordance with local laws and regulations.