INSTRUCTION MANUAL

MINI TYPE
WEATHER METER

$ C \epsilon $

Model: ■8909
■8910

Your meter package contains one Lithium CR2032 battery ,calibration numbers (on a small white paper included with the manual), and a lanyard. It is **very important** that you keep the calibration numbers with your manual. **Do not throw the calibration paper away!** To install the lanyard, feed one end through the hole at the bottom of the handle and tie it to the other end. Your meter has sensitive sensors. Hold the meter at the bottom of the handle, away from your face and body, to avoid getting false readings.

Replaceable Impeller
Temperature Sensor
Humidity Sensor
Pressure History
Value Screen
Weather Meter
AIR FLOW • TEMP • RH • BARO
Tri-pod Mount
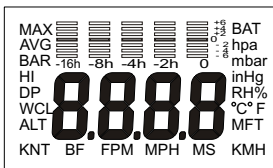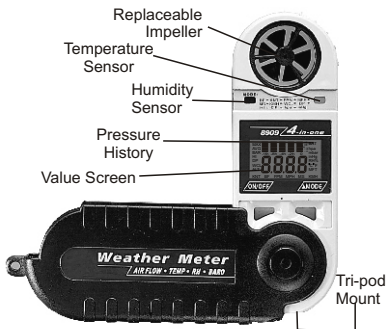
Open case and click into fully opened position or, if using a tripod, click to the 90-degree position.
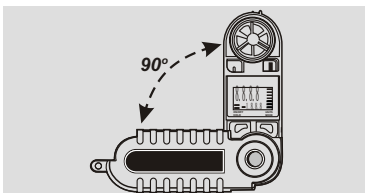
𝒪 Detended at 90º for tripod mountable.
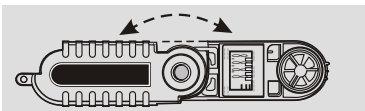

𝒪 Detended at 180º for fully opened.

Units of Measure:

With the meter on, by pressing **MODE** key , the mode icon cycles in order **KNT** (for example) , **KNT** and **MAX** , **KNT** and **AVG**, **ºC**(or **ºF**) , **%RH** , **BAR** (with **hpa/mbar** or **inHg** icon), **ALT** (**M** or **FT**) ,**WCL** (with **ºC** or **ºF** icon) , **DP** (with **ºC** or **ºF** icon) , **HI** (with **ºC** or **ºF** icon) .   Change the units of measure by selecting the mode you wish to change (i.e. Windspeed). Next, press and hold the **ON/OFF** key and, while holding, press the **MODE** key to change the units of measure cycles from **KNT , BF , FPM , MPH , MS , KMH** ,release the **ON/OFF** key when desired unit is selected .

Operating Modes:

Turn the unit on using the left button. Use the right button to scroll to the desired function. To turn off the unit, press and hold the **ON/OFF** button for about 3 seconds, until the display is blank, then release

GENERAL INDICATORS
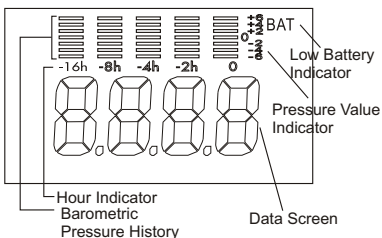
Low Battery Indicator:
Indicates the battery is running dry.

Data Screen:
Indicates the value of data being collected

Bar Graph:
Using the bar graph: The bar graph represents a 16-hour history of the barometric ressure. The column labeled ¡0 ¡ indicates the current pressure. Each horizontal bar represents +/-2 mba/hpa as indicated by the pressure value indicator. *(Please note that the bar graph will not be displayed until barometric history has accumulated, as the meter only records barometric pressure while the unit is on.)*

WIND SPEED

Maximum Wind Speed — MAX

Average Wind Speed — AVG

-16h -8h -4h -2h 0

Windchill — WCL

18.2

Knots — KNT BF FPM MPH MS KMH

Beaufort

Feet per Minute

Miles per Hour

Meters per Second

Kilometers per Hour
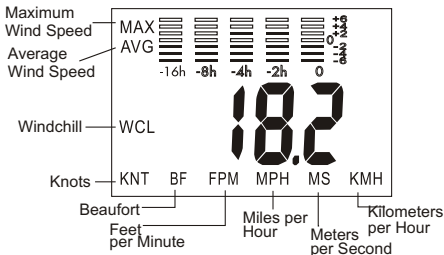
Current Windspeed:

In current windspeed mode, only the unit of measure will be shown.

Maximum Windspeed:

Displays maximum speed recorded since the unit was turned on.

Average Windspeed:

Displays a running average over ten seconds.

Wind-Chill:

Displays the effect that air temperature combined with windspeed has on human skin.

Units of Measure:

The meter measures windspeed in six different units of measure. Knots, Beaufort, Feet Per Minute, Miles Per Hour, Meters Per Second, and Kilometers Per Hour. To switch between units of measure please see the *Units of Measure* section for instructions.

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TEMPERATURE

Heat Index Indicator — HI

Dewpoint Indicator — DP

°F
Unit of temperature
°F or °C
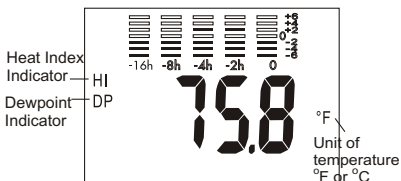
General Temperature:

Displays the temperature in Fahrenheit or Celsius.
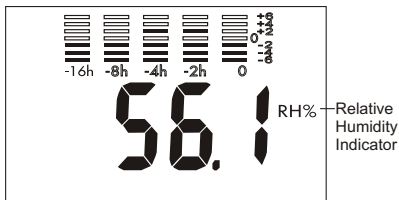
Heat Index:

Displays the measure of how humidity acts along with high temperatures to reduce the body's ability to cool itself. It most cases, the heat index will be lower than the temperature.

Dew point:

Displays the temperature at which air becomes saturated with moisture (the temperature at which fog will form)

RELATIVE HUMIDITY

RH% — Relative Humidity Indicator

General Relative Humidity:

Displays the current relative humidity. Relative humidity is the amount of moisture measured in the air. Your meter comes pre-calibrated from the factory for relative humidity. However, the meter can be calibrated manually for more demanding field requirements. To calibrate the relative humidity, see the *Humidity Calibration* section.

BAROMETRIC PRESSURE
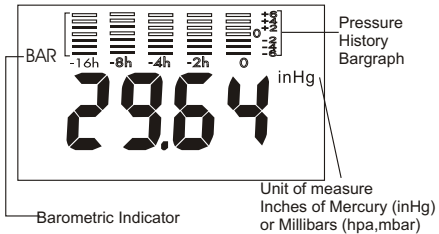
Barometer Indicator:

Indicates the unit is in barometric pressure mode.

Pressure History Bar Graph:

Displays barometric pressure history for the past 16 hours. Note: The unit must be on for 16 hours before the complete graph is displayed. For more information, please see section titled *Bar Graph.*

Unit of Measure:

The meter can display barometric pressure in inches of mercury (inHg) or in millibars / hectopascals (hpa mbar).

ALTITUDE (MODEL 8910)

-16h -8h -4h -2h 0

Unit of measure
Feet (FT) or
Meters (M)

ALT

300

FT
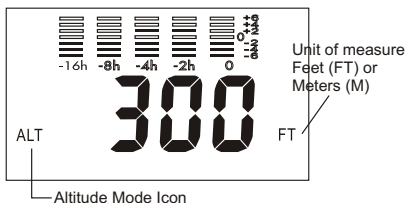
Altitude Mode Icon

General Altitude Mode:

The meter can register altitudes
between -650 to 9000 meters. During
altitude use, the storm alarm is disabled
to prevent false alarms from changes in
pressure. *Note:* Altitude change on its
own as the air pressure changes.
Note: Altitude changes occur , therefore
it is useful to re-calibrate.
See the *Re-calibration* section , make
sure you have first obtain your local
altitude and follow the instruction step .

Altitude Mode Icon:
Indicates the unit is in altitude mode.

Unit of Measure:
The meter can display altitude in feet
(FT) or meters (M).

RE-CALIBRATION

*(Your meter comes pre-calibrated
Barometric pressure and Altitude
(model 8910 only) from the factory.
First obtain a nearby ,reliable reading
of barometric pressure and local
altitude -8910 model used)*

Barometric Pressure calibration:

While the unit is **off**, press and hold the on/off key for 2 seconds. The screen will display current pressure with a flashing BAR indicator on the left side. When you see the indicator flashing, release the on/off button. Press the on/off key to go **up** in units, press the mode key to go **down** in units. If you are calibrating your master using inHg as your unit of measure, convert the value to millibars by multiplying by 33.86. The meter only allows calibration in millibars. After calibrating barometric pressure, wait 5 seconds and the unit will automatically go into altitude calibration.If you do not wish to calibrate altitude, simply leave the unit on and it will return to its normal operating mode. The changes have now been stored until you recalibrate it.

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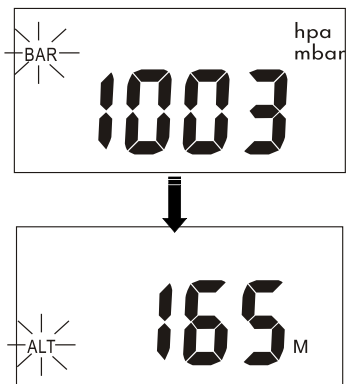
Altitude calibration procedure (8910) :

With the unit **off**, press and hold the **ON/OFF** key for 2 seconds. You will see the flashing **BAR** indicator on the left. After flashing for 5 seconds, it automatically moves to Altitude calibration mode and you will see the current altitude and a flashing **ALT** indicator. Press the **ON/OFF** key to go **down** in units, press the **MODE** key to go **up** in units. The altitude can only be calibrated in meters. If you are calibrating your altitude and you know the value in feet, convert it by dividing the value in feet by 3.3. When you have completed the calibration, the unit will automatically return to normal operation in a few seconds. The changes have

$$700\ \text{RH\%}$$

Figure A

$$3000\ \text{RH\%}$$

Figure B

Humidity calibration procedure :

First, locate the calibration paper that was supplied with your meter (it is a small white slip of paper with numbers on it). You will find on the bottom left corner the word **VOUT**, followed by two numbers (voltage input value at 0% and 75%). It will look similar to this:

> **Example: Vout @0% = 0.744 @75.3% = 3.056**

With the unit on, press and hold the on/off button for 10 seconds. The display will turn off and then back on, displaying the number 700 (Fig. A). Enter the **first voltage input number** (in the above example, the number is 744) into this screen by pressing the mode button to scroll up (omitting the decimal).

Note: When in humidity calibration mode, the mode button only scrolls up, not down, so it is important that you do not miss the number you are entering. When finished, press the on/off button again, you will see the number 3000 (Fig. B). Enter the **second voltage input number** (3056 in the example above), using the same procedure as before. To store the changes, press the on/off button. The unit will then shut off with the new values stored internally. (Even though they show default values again when you return to calibration mode, the unit did hold the calibration.) **NOTE:** It is **very important** that the voltage input information be kept with your meter instructions.

IMPELLER REPLACEMENT

To replace the impeller, use a small screwdriver (preferably a #2 phillips head screwdriver) to loosen the set-screw found on the back of the weather monitor. Remove the impeller by twisting the impeller assembly clockwise (if you are facing the back of the windmeter) to the O position marked on the rear of the meter.
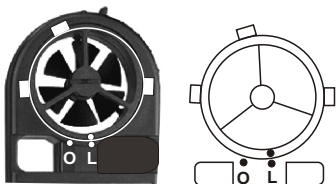
BATTERY

To replace the battery, turn the compartment cover in a counter-clockwise direction to remove it. The battery will be visible in the battery compartment. Be sure to observe the position of the battery and replace with a new **CR2032 lithium battery** in the same position. Lithium batteries, including the CR2032, can be purchased anywhere batteries are sold
.
To conserve battery life, leave the unit in barometer mode when not in use.
Different modes have different drains on the battery. When left on in barometer mode the battery should last 4-6 months. Wind speed will drain the battery most rapidly, followed by relative humidity.

SEVERE WEATHER ALARM:

The severe weather alarm will sound if there is a dramatic change in pressure. The feature is set to go off if the air pressure changes by 6 millibars (up or down) within a 3-hour period. (This is a good indication of severe weather approaching). The alarm will sound once for five seconds. If the pressure continues to change, the alarm will continue to sound once every hour. **Note:** the storm alarm feature is disabled when the Skymaster is in Altitude mode. This is to prevent the alarm from sounding false alarms as your altitude changes (due to the altitudes effect on air density).

RANGE / RESOLUTION

"RS" stands for Resolution.

Unit		Range	RS
MS	Meter per second	1.1~20.0	0.1
FPM	Feet per minute	60~3937	2
KNT	Knot	0.4~38.8	0.1
KMH	Kilometer per hour	0.8~72.0	0.1
MPH	Mile per hour	0.5~44.7	0.1
BF	Beaufort	1~8	1
RH%	Relative Humidity	5~95	1
DP	Dew Point	0~50	0.1
°C	Centigrade	-20~50	0.1
°F	Fahrenheit	-4~122	0.1

UNITS CONVERSION TABLE

	1 MS	1 FPM	1 KNT	1 KMH	1 MPH
MS	1	0.00508	0.5144	0.2778	0.4464
FPM	196.87	1	101.27	54.69	87.89
KNT	1.944	0.00987	1	0.54	0.8679
KMH	3.6	0.01829	1.8519	1	1.6071
MPH	2.24	0.01138	1.1523	0.6222	1

SPECIFICATION

Min/Max.Windspeed	0.5~44.7 MPH
Min/Max.Windspeed	60~3937 FTM
Average readings	5/10/13 second
Dimension	(180° fully opened) 235 x 45 x 25mm
Dimension	(90° folded) 140 x 45 x 25mm
Impeller Dia.	33 x 16 mm (T)
Unit in Imperial	^oF ,FTM ,MPH
Unit in Metric	^oC ,MS ,KMH
Unit	KNT, BF
Operating Temperature	$-15^oC\sim50^oC$
Response time :	
Wind Speed	1 second
Temperature	1 minute
Relative Humidity	15 seconds
Barometric pressure	15 minutes
Update current Pressure	1 minute
Update pressure history	15 minutes

WARRANTY

The meter is warranted to be free from defects in material and workmanship for a period of one years from the date of purchase.

This warranty covers normal operation and does not cover batteries,misuse, abuse, alteration, tampering, neglect, improper maintenance, or damage resulting from leaking batteries.
Proof of purchase is required for warranty repairs.

RETURN AUTHORIZATION

Authorization must be obtained from the supplier before returning items for any reason. When requiring a RA (Return Authorization), please include data regarding the defective reason, the meters are to be returned along with good packing to prevent any damage in shipment and insured against possible damage or loss .

CE CERTIFICATION

The meter conforms to the following standards:
* EN 50081-1/1992 : EN 55022
* EN 50082-1/1997 : EN 55024
   (EN 61000-4-2/-3/-8,ENV 50204)
, the meter complies with the essential protection requirements of Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

**Accuracy, the Zenith of
Measuring / Testing Instruments !**

⚠ Hygrometer / Psychrometer
⚠ Thermometer
⚠ Anemometer
⚠ Sound Level Meter
⚠ Air Flow meter
⚠ Infrared Thermometer
⚠ K type Thermometer
⚠ K.J.T. type Thermometer
⚠ K.J.T.R.S.E. type Thermometer
⚠ pH Meter
⚠ Conductivity Meter
⚠ T.D.S. Meter
⚠ D.O. Meter
⚠ Saccharimeter
⚠ Manometer
⚠ Tacho Meter
⚠ Lux / Light Meter
⚠ Moisture Meter
⚠ Data logger
⚠ Temp. / RH transmitter
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