

**Bluetooth IAQ
Anemometer**

900030

Instruction Manual

SPER
SCIENTIFIC

Environmental Measurement Instruments

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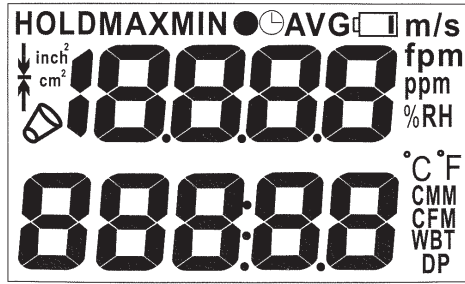
INTRODUCTION

Thank you for purchasing the IAQ Anemometer which measures:

- CO2
- Air Temperature
- Humidity
- Air velocity & volume
- Dew Point
- Wet Bulb Temperature

This unique instrument allows you to monitor air flow and air quality and at the same time. Backlit dual display enables you to choose between an upper display of air velocity, RH or CO2 and a lower display of air temperature, air volume, dew point or wet bulb temperature. Calculates min/max, multi-point and time weighted average on all parameters and has a hold function. View readings on your smartphone in real time via Bluetooth® with free iOS and Android apps and export a summary the data together for later analysis. The app will also superimpose current readings of all parameters on your smart phone photo of the object being measured. Simple user calibration of CO2. and RH. Also enables input of air pressure for accurate compensation of CO2 measurements. The CO2 sensor uses NDIR (non-dispersive infrared) waveguide technology to ensure long-term accuracy, and reliability. Comes in a hard carrying case with 4 AAA batteries. Optional air cones come in a set with one round cone for vents <7 ½" diameter and one square cone for vents <12 ½" x 12 ½". When attached to the cone the meter automatically calculates air volume without the need to input vent size. The optional extension rod can be used with the meter alone, or the cone, eliminating the need for a ladder.

LCD DISPLAY



Upper display: Air velocity, RH, CO2 value (depends on model)
Duration time in average.

Lower display: Air volume, temp., WBT, DP value
(depends on model.)

HOLD: Freezes the current reading.

MAX/MIN: Maximum and minimum reading.

● ⊕ AVG: Multi-points & timed average.

🔋 : Battery Low voltage indicator.

ppm : CO2 unit.

m/s, fpm : Air velocity unit.

%RH : Relative humidity unit.

°C, °F : Temperature unit.

CMM, CFM : Air volume unit.

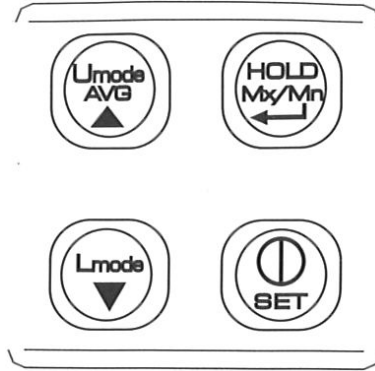
WBT, DP : Wet Bulb, Dew Point temp.

inch² cm² : Area dimension unit.

🔊 : Air flow cone attached.

⬇️⬆️ : Vain in this meter.

KEY PAD



- Press and release the Power button to turn the meter on/off.
- Hold the button down for 2 seconds to enter or exit setup mode.





- Press and release HOLD to freeze the current reading. Press again to unfreeze readings.
- Hold the button down for 2 seconds to view Minimum and Maximum values. Hold down again to return to normal mode.
- In average mode press to record data or start timed recording.
- In setup mode press to enter data settings.



- With the meter on, press Lmode to select a lower display of air temperature, air volume, WBT (Wet Bulb Temperature), or DP (Dew Point).
- In average mode, press to select the type of average you seek, press again to return to normal mode.
- In setup mode, press to select category or increase value.



- Press Umode to select an upper display of air velocity, RH (Relative Humidity) or CO2.
- In average mode, press to view recorded and average reading of all parameters.
- In setup mode press to select category or decrease value.



Press  +  simultaneously to disable auto power off.

MEASUREMENT PROCEDURES

Power on/off

Press and release the **Power** button to turn the meter on/off.

Auto Power Off

When turned on the meter defaults to auto-off mode which automatically turns the meter off after 20 minutes of inactivity. To override auto-off hold  +  down simultaneously for 2 seconds. “n” will briefly appear on the display confirming that the meter is in normal mode and auto-off has been disabled.



Display Units

When initially powered on the meter displays air velocity in the upper display and air temperature in the lower display. Press **Umode** to cycle upper display readings of air velocity, RH (Relative Humidity) or CO2. Press **Lmode** to cycle lower display readings of air temperature, air volume, WBT (Wet Bulb Temperature), or DP (Dew Point). The meter will default to your most recent selection the next time it is powered on.

Data Hold

Press and release **HOLD** to freeze the current reading. “HOLD” appears on the top left corner of the display. Press again to unfreeze readings.

Max, Min

1. Press **Mx/Mn** for 3 seconds to view minimum reading of all parameters. “MIN will appear atop the display and the minimum values since the meter was turned on will be displayed.
2. Press **Mx/Mn** again for 3 seconds to display maximum readings. “MIN will appear atop the display and the minimum values since the meter was turned on will be displayed.
3. Press the up arrow to scroll minimum and maximum parameters in the upper display and press the down arrow to scroll parameters in the lower displays.
4. Press **Mx/Mn** again for 3 seconds to return to the normal mode.

Average Functions

The meter can calculate multi-point or timed averages on all parameters. This can also be done via the App (see p. 15)

Multi-Point Average

1. In normal mode press “AVG” for 2 seconds to enter multi-point average mode.



2. Press enter repeatedly to record specific readings.

3. Once recorded press the ▲ to see the average of all the data points recorded. AVG will flash while the number of data points will appear in the upper display and the average reading will displayed in the lower display.



4. Press the ▼ to scroll through the average readings of each parameter.
5. Press “AVG” again to return to normal mode.

Timed Average

1. In normal mode press “AVG” for 2 seconds and the meter enters multi-point average mode. Press it again to enter Timed Average mode.
2. Press enter to start recording. The upper display shows the timed duration in seconds (maximum 19999 seconds), and the lower display shows the current reading.




3. Press the up arrow to end the recordings and calculate the timed average. “AVG” begins flashing and the timed duration in seconds appears on the upper display while the average reading appears in the lower display.

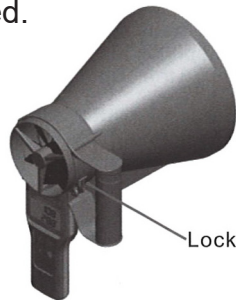


4. Press ▼ to view average readings of other parameters.
5. Press AVG again to return to normal mode.

Air Volume


You have 3 options for measuring air volume:

1. Enter the square dimensions of the vent or duct you wish to measure directly into the meter. (see Setup p. 11).
2. The App offers you additional options for calculating air volume. (see p. 15)
3. Use the optional airflow cones. Make sure the meter is fully inserted and locked into the cone.  indicates that it recognizes the cone. The meter will now automatically calculate air volume, without reference to any measurements you may have previously entered.



Note: The vent size must be no larger than the cone.

CO2

The CO₂ sensor is built into the rear of the center of the vane. Press  repeatedly to reach CO₂ in the upper display. (See p. 11 for CO₂ calibration). For accurate readings at high altitudes CO₂ should be compensated for air pressure. This can be done directly on the meter (see Setup P4.0 on p. 11, or via the App. see p. 15)

SETUP & CALIBRATION

In normal mode press power “Set” for 2 seconds to enter setup mode. Press again for 2 seconds to exit setup mode. Use the up and down arrows to select among the following options:

P1.0 Unit selection

P2.0 Area input

P3.0 RH offset

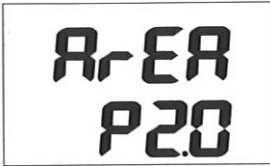
P4.0 Pressure compensation.

P1.0 Unit Selection

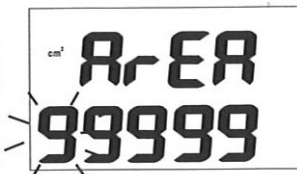


1. Press enter to enter unit selection mode.
2. Press ▲ & ▼ arrow to switch from metric to imperial units.
3. Press enter to return to P1.0 then press the up arrow to scroll to P2.0.

P2.0 Area input



1. Press enter and the display will show “99999” with the first digit flashing.



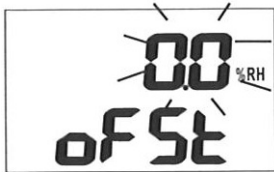
2. Press ▲ to change the digit and ▼ to move to the next digit.
3. When complete, press enter to return to P2.0. then press the ▲ to scroll to P3.0.

P3.0 RH Offset



RH value can be adjusted to any known standard.

1. Press enter to enter the RH Offset mode. 0.0RH flashes on the upper display.

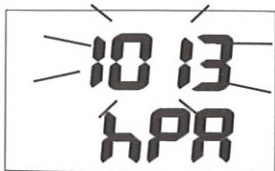


2. Press ▲ to increase and ▼ to decrease the offset value, i.e. the difference between you meter and your known RH standard's reading.
4. Press enter again to return to P3.0. then press the ▲ to scroll to P4.0.

P4.0 Pressure Compensation





1. Press enter to enter the pressure compensation mode.
The default value of 1013 hpa flashes on the display.



2. Press ▲ to increase the air pressure value and ▼ to decrease it.
3. When finished press enter again to return to P4.0. Hold power for 2 seconds to return to normal mode.

CO2 Calibration

The meter is calibrated at 400ppm CO2 concentration at the factory. We suggest recalibrating at least once a year for the best accuracy. This should be done in fresh air (=equals 400ppm). Calibrating the meter in higher CO2 concentrations will lead to inaccurate readings. Calibration procedure:

1. With the meter off press and release power,  and  simultaneously to enter the CO2 calibration mode. "CAL" will appear in the lower display and the meter begins counting down for 30 seconds and then begins calibration to 400ppm.



2. During calibration a CO2 reading of 380 to 420 will flash in the upper display.



3. After 10 minutes the reading will stop flashing, calibration is complete, and the meter returns to normal.

Note: Make sure the batteries are at full voltage during to prevent interruption and a failed calibration.

NICE FLOW APP

System Requirements:

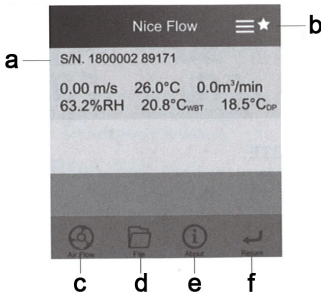
iOs above 10.4

Android above 6.0

1. Download the free "Nice Flow" App from your Apple App Store or Google Play Store for Android phones.



2. Turn the meter on and open the App on your smart phone. In a few seconds current data on all parameters from the meter will appear on the Air Flow page. Information from up to 5 meters can viewed simultaneously.



a. **Device Name**

b. **Display Preferences:** All measurement parameters are initially displayed. You may remove any parameter from the App display simply by clicking on the star next to it. Click on "Return" at the bottom of the screen to save your settings.

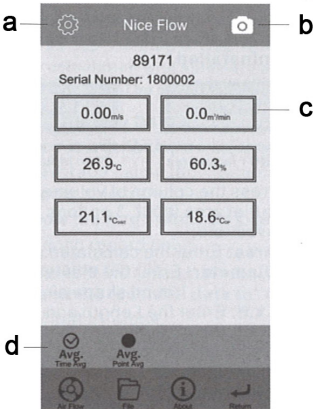
c. **Air Flow** - Return to this page at any time by clicking on the "Air Flow" icon at the bottom of the screen.

d. **File** – View saved Average calculation files.

e. **About** – App privacy information

f. **Return** – Return to the previous page or in some cases, the Air Flow screen.

3. Tap on the current reading to see further details:



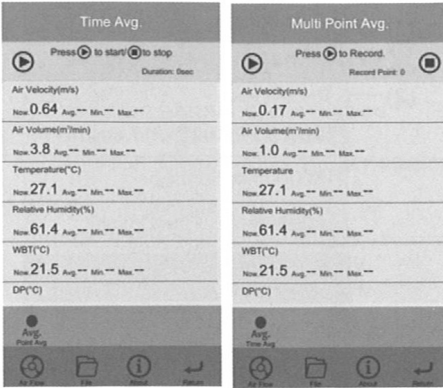
a. **Settings** - Enables you to:

- Name your meter.
- Select imperial or metric units of measure.
- Adjust RH values to any known standard. Input the difference between your meter and your RH standard.
- Compensate CO2 readings for atmospheric pressure by inputting the atmospheric pressure at your current location.

b. **Camera** - Allows the App to superimpose measurement data on photos taken with your smartphone. These will be saved to your phone's camera file for later viewing or inclusion in reports.

c. **Area** - Tap the cubic air volume reading to input the area being measured for calculation of air volume. You have three options: Enter the square area, diameter, or length and width of the vent or duct being measured. Press "OK" to confirm.

Note: The App will not allow input of the area when attached to the cone.



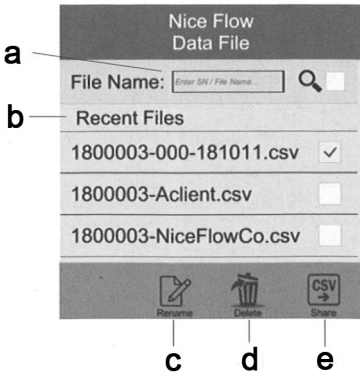
d. Average


Press to enter timed average mode

Press to enter multi-point average mode.

Press to record.

Press to stop recording. Files are saved automatically.



- a. **Search** - Enter a file serial number or name and press  to search for a file.
- b. **View Data** - Tap a file name to view average data on all parameters in that file.
- c. **Rename** - The App provides each file with a default name composed of a serial number, sequence number and date. The latter two can be replaced with a file name of your choosing.

To change the name: Check the box to the right of the file then tap “rename” at the bottom of the screen. Enter and save your new file name.

- d. **Delete** – Delete the selected file. Please note that the file can not be retrieved once deleted.
- e. **Share CVS File** – Check the file you wish to share then tap “CSV” at the bottom of the screen.

ERROR CODES & SOLUTIONS

Air Temperature

- E02** - Temperature *under* range. Placing the meter at room temperature for 30 minutes should restore the temperature reading.
- E03** - Temperature *over* range. Placing the meter at room temperature for 30 minutes should restore the temperature reading.
- E031** - Temperature circuit damaged. Return to Sper Scientific for repair.

RH

- E04** - RH error caused by temperature error. See Temperature errors and solutions above.
- E11** - RH calibration error. Try to recalibrate and if that doesn't work return to to Sper Scientific for repair.
- E33** – RH measurement circuit error. Return to Sper Scientific for repair.

DP and WBT

- E04** – Temperature or RH error. Check Temperature and RH errors and solutions above.

Air Velocity

E03 – Velocity over range. If the error persists within range return to Sper Scientific for repair.

E04 – Air velocity error. Return to Sper Scientific for repair.

CO2


E03 – Temperature over range. Place the meter in room temperature for 10 minutes. If the error persists recalibrate. If the error still persists return to Sper Scientific for repair.

E01/E33 – Voltage too low or CO2 module error. Check the low battery icon and replace if necessary. Recalibrate and if the error persists return to Sper Scientific for repair.

Other Error Codes

E32 – Memory IC error. Turn the meter off and on again. If the error persists return to Sper Scientific for repair.

Low Battery

When the battery voltage falls below the required range  appears on the LCD. Replace with new batteries to ensure accurate measurements.

SPECIFICATIONS

SCALE	RANGE	RES.	ACCURACY
Temperature	4 to 140°F 10°C to 60°C	0.1°F 0.01°C	±0.9°F ±0.6°C
Relative Humidity	0 to 99.9%	0.1%	±3% at 10 to 90% RH otherwise ±5%
Dew Point	8 to 140°F -5 to 59.9°C	0.1°	
Wet Bulb Temperature	-100 to 140°F -20 to 59.9°C	0.1°	
Air Velocity	0.20 to 30 m/s	0.01	±1.5% rdg + 0.3 m/s (<20m/s) ±3% rdg + 0.3 m/s (>20 m/s)
Air Volume	0 to 99999 m ³ /s (0 to 99999 cfm)	0.1 (0-9999.9) or 1 (10000-99999)	
CO2	0 to 5000 ppm	1 ppm	±30 ppm ±5% rdg

Power:

4 x 1.5V AAA battery

Dimensions: 10½" × 4" × 2" (269 × 106 × 51 mm)

Weight: 7 oz (200 g)

Probe Diameter: 4" Diameter (140 mm)

FCC ID: TN2-NICEFLOW

This device and enclosed comply with part 15 of the FCC Rules. Operation is subject to the two following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

OPTIONAL ACCESSORIES

900031 Airflow Cone Kit

900032 Extension Rod

WARRANTY

Sper Scientific warrants this product against defects in materials and workmanship for a period of **five (5) years** from the date of purchase, and agrees to repair or replace any defective unit without charge. If your model has since been discontinued, an equivalent Sper Scientific product will be substituted if available. This warranty does not cover batteries, battery leakage, or damage resulting from accident, tampering, misuse, or abuse of the product. Opening the thermometer to expose its electronics will void the warranty. To obtain warranty or recalibration service, ship the unit postage prepaid to:

SPER SCIENTIFIC LTD.

8281 E. Evans Rd., Suite #103
Scottsdale, AZ 85260
(480) 948-4448

The defective unit must be accompanied by a description of the problem and your return address. Register your product online at www.sperwarranty.com within 10 days of purchase.

