# Mini Environmental Quality Meter

## 850026
Instruction Manual

SPER
SCIENTIFIC
Environmental Measurement Instruments

**Mini Environmental Quality Meter 850026**

Copyright ©2012 by
Sper Scientific
ALL RIGHTS RESERVED
Printed in the USA

**TABLE OF CONTENTS**

**INTRODUCTION**

For environmental testing anywhere. Model 850026 combines 7 environmental test functions into a single compact unit. Features include touch-tone buttons, min/max and hold functions. Comes ready to use with wrist strap, instructions, battery and soft carrying case.
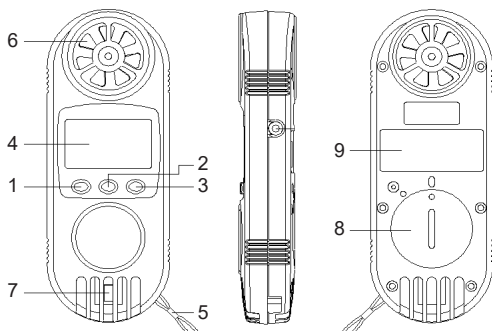
**MATERIALS SUPPLIED**

Meter
Wristlet
CR 2032 DC 3V Battery
Soft Carrying Case

**FEATURES**

- 7 professional environmental instruments in 1
- Lightweight, ergonomic design
- Wristlet design provides extra protection to the instrument
- Low-friction ball bearing mounted impeller design provides high accuracy at high and low air velocity
- High precision humidity sensor with fast response time
- Built-in microprocessor circuit assures excellent performance and accuracy
- Concise and compact buttons arrangement for easy operation.
- Maximum and minimum memory with recall
- Hold function
- °F/°C selection

## FRONT PANEL DESCRIPTION



1 Hold button
2 ⏻ Button (Power button)
3 REC button
4 LCD display
5 Wristlet
6 Anemometer vane
7 Humidity/Temperature sensor
8 Battery compartment cover
9 Buttons operation label

## OPERATING INSTRUCTIONS

### Power on/off

ⵁ Button = Power Button

1. Power on: Press ⵁ once to turn meter on.
2. Power off: Press ⵁ for > 3 seconds to turn meter off.

### LCD backlight on/off

With the meter on, press ⵁ once. The LCD backlight
will light for 5 seconds, then shut off automatically.

### Mode selection

This meter offers 7 selectable modes:

a. Anemometer (Air velocity) /Temp
b. Air flow (CMM, CFM)
c. Wind Chill
d. Humidity/Temp
e. Dew point Temp
f. Wet bulb Temp
g. Heat index

With the meter on, press **HOLD** continuously and the
Display will show the following texts in sequence:

**Display Mode text**

**An =** Anemometer (Air velocity) /Temp
**AirFL =** Air flow (CMM, CFM)
**CHiLL =** Wind chill
**rH =** Humidity/Temp
**dP =** Dew point Temp
**_Et =** Wet bulb Temp
**HEAt =** Heat index

When the display shows the desired mode, release
**HOLD** and the meter will set this mode as the default.

**Anemometer (Air Velocity)/Temp Measurement**

**Unit Selection**
**REC** button = Enter button

1. With the power on, press **REC** for >3 seconds, the
   display will show Unit. Release **REC**, then press ⏻ to
   scroll through the available scales. After the desired
   scale is selected, press **REC** to save as the default.

2. The next screen displays "dCdF" with the current
   temperature scale selection (°F or °C) below.
   Press ⏻ to select the desired scale. Press **REC** to
   save as the default.

**Note…**
When CHiLL, rH, dP, _Et and HEAt are the selected mode, you may only change the temperature scale setting. (°F or °C)

**The selection scales for all modes are:**

| Measurement | Scales |
|---|---|
| Air Velocity | m/s, Km/h, mph, knot, FPM |
| Temp. (Air velocity) | °F/°C |
| Air flow | CMM, CFM |
| Wind chill | °F/°C |
| Temp. (Humidity) | °F/°C |
| Dew point | °F/°C |
| Wet bulb Temp. | °F/°C |
| Heat index | °F/°C |

**Note…**
**For the most accurate reading for the humidity/ Temp., Dew point Temp., Wet bulb Temp., Heat index measurement, do not touch or block the humidity sensor at any time with your hand.**

**Air flow measurement**

1. With the Power on, select Air flow mode (refer to page 9)

2. Set the measurement area dimension:
   Press **Hold** once, the display will show **HOLD** then press **REC** continuously until the lower left of the Display shows m-2 or F-2

   m-2 = meter square
   F-2 = ft square

   The unit of measure is determined by the selected scale CMM or CFM

3. Use **Hold** and ⏻ to adjust the air flow dimension value. When the desired dimension value is set, press **REC** to save as the default.

   ⏻ button = ▲ button
   **Hold** button = ▼ button
   **REC** button = Enter button

**Hold Function**
Pressing **Hold** will freeze the current reading on the display. The HOLD symbol will be displayed at the top of the display window.

To release the Hold function, press **Hold** again, the HOLD indicator will disappear and the current reading will be displayed.

**REC (Record) function**
The **REC** (Record) function will record and display the maximum and minimum readings.

1. Start the Record function by pressing **REC** once. The REC symbol will appear on the display.

2. With the REC symbol on the display:

 a. Press **REC** once and the Max symbol will appear on the display along with the current maximum value.
 b. Press **REC** again, the MIN symbol will appear on the display along with the current minimum value.
 c. Clear the recorded MAX or MIN value from the display by pressing **Hold** once. The MAX/MIN symbols and their readings, will disappear from the display. The meter will return to the REC function and continue recording.
 d. To exit REC function press **REC** button for >2 seconds.

**Auto power off disable**
In order to prolong the battery life, this instrument has an Auto Power Off function: the meter will turn off if no buttons are pressed for approximately 10 minutes.

To disable the Auto Power Off function, press **REC** and enter the record function. The Auto power off function will be disabled until the record function is exited.

**REPLACE BATTERY**

1. When the LCD display shows ⊡ symbol, it is time to replace the battery. (Measurements may still be made for several hours after the low battery indicator appears.)

2. Open the Battery Compartment, remove the battery.

3. Install the battery (CR2032) and replace the cover.

**GENERAL SPECIFICATIONS**

| Display | 8 mm LCD display |
| --- | --- |
| Measurement | 1. Anemometer (Air velocity)/Temp |
| | 2. Humidity/Temp |
| | 3. CMM, CFM |
| | 4. Dew point |
| | 5. Wet bulb |
| | 6. Wind chill |
| | 7. Heat index |
| Operating Humidity | Max. 80%RH |
| Operating Temperature | 32 to 122°F (0 to 50°C) |
| Over Input Display | "- - - -" |
| Power Supply | CR 2032 DC 3V battery |
| Power Consumption | Approx. DC 5 mA |
| Weight | 2.2 oz (65 g) (battery included) |
| Dim (HWD) | 4¾" x 1¾" x ⅞" (120 x 44 x 21 mm) |
| Standard Accessories | Manual, battery, soft case |

## ELECTRICAL SPECIFICATIONS

@ 74 ±9°F (23 ±5°C)

| Air Velocity | | | |
|---|---|---|---|
| | Range | Resolution | Accuracy |
| ft/min | 80 to 3927 ft/min | 1 ft/min | |
| m/s | 0.4 to 20.0 m/s | 0.1 m/s | ≤20 m/s:±3% FS |
| km/h | 1.4 to 72.0 km/h | 0.1 km/h | |
| mph | 0.9 to 44.7 mph | 0.1 mph | >20 m/s:±4% FS |
| knots | 0.8 to 38.8 knots | 0.1 knots | |
| °F | 32 to 122°F | 0.1°F | ±2.5°F |
| °C | 0 to 50°C | 0.1°C | ±1.2°C |

## VELOCITY DEFINITIONS

**ft/min:** feet per minute
**m/s:** meters per second
**km/h:** kilometers per hour
**mph:** miles per hour
**knots:** nautical miles per hour

## ELECTRICAL SPECIFICATIONS

@ 74 ±9°F (23 ±5°C)

| Humidity/Temperature | | | |
|---|---|---|---|
| | Range | Resolution | Accuracy |
| RH | 10 to 95%RH | 0.1%RH | <70%RH: ±4%RH ≥70%RH: ±(4%RDG +1.2%RH) |
| °F | 32 to 122°F | 0.1°F | ±2.5°F |
| °C | 0 to 50°C | 0.1°C | ±1.2°C |

| Air Flow | |
|---|---|
| Range | Resolution |
| 0.024 to 36000 CMM | 0.001/0.01/0.1/1 CMM |
| 0.847 to 1271300 CFM | 0.001/0.01/0.1/1/10 (x10)/100 (x100) CFM |

| Dew point Temperature | | | |
|---|---|---|---|
| | Range | Resolution | Remark |
| °F | -13 to 120°F | 0.1°F | *Calculated from the humidity/Temp. value |
| °C | -25 to 49°C | 0.1°C | |

| Wet bulb Temperature | | | |
|---|---|---|---|
| | Range | Resolution | Remark |
| °F | 22 to 120°F | 0.1°F | *Calculated from the humidity/Temp. value |
| °C | -5 to 49°C | 0.1°C | |

## ELECTRICAL SPECIFICATIONS

@ 74 ±9°F (23 ±5°C)

| Wind chill* | | | |
|---|---|---|---|
| | Range | Resolution | Accuracy |
| °F | 15 to 112°F | 0.1°F | ±3.6°F |
| °C | -9 to 44°C | 0.1°C | ±2.0°C |

*Wind chill value is in effect only when the Temp. value <15°C and Air velocity value >1.4 m/s.

| Heat index | | | |
|---|---|---|---|
| | Range | Resolution | Accuracy |
| °F | 32 to 212°F | 0.1°F | ±3.6°F |
| °C | 0 to 100°C | 0.1°C | ±2.0°C |

| Effects of the heat index (shade values) | | |
|---|---|---|
| °F | °C | Notes |
| 80 to 90°F | 27 to 32°C | Caution: Fatigue is possible with prolonged exposure and activity. Continuing activity could result in heat cramps |
| 90 to 105°F | 32 to 41°C | Extreme caution: Heat cramps, and heat exhaustion are possible. Continuing activity could result in heat stroke |
| 105 to 130°F | 41 to 54°C | Danger: Heat cramps, and heat exhaustion are likely; heat stroke is probable with continued activity |
| 130°F+ | 54°C+ | Extreme danger: Heat stroke is imminent |

*Exposure to full sunshine can increase heat index values by up to 14°F (8°C)

15

## 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 probes, batteries, battery leakage, or damage resulting from accident, tampering, misuse, or abuse of the product. Opening the meter to expose its electronics will void the warranty.

To obtain warranty service, ship the unit postage prepaid to:

**SPER SCIENTIFIC LTD.**
8281 E. Evans Rd., Suite #103
Scottsdale, AZ 85260

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.

Revised 6/13/2019