

SPER SCIENTIFIC

OPERATION MANUAL

HOT WIRE ANEMOMETER



Model 860057



OPERATION QUICK GUIDE



Step1

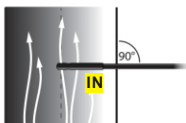
Install 4pcs AAA batteries and press power key to turn meter on and start to measure.



Step2

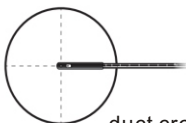
Recognize the air IN marking from sensing head and telescopic tube

IN Air IN direction

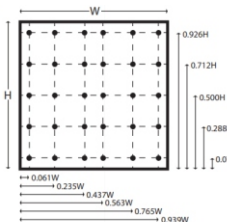


Step3

Align the sensor to airflow path through correct handling



duct cross section



Step4

Moving telescopic tube to measure speed at multiple duct depth

INTRODUCTION

Thank you very much for purchasing this hot wire anemometer. The meter is designed as battery operation for taking air velocity, volume and temperature.

The robust air flow & temperature sensors are built in the external probe. The compact probe head is ideally designed for duct airflow. Duct temperature is compensated and has limited influence on air flow data.

This anemometer is a micro processor-based design. A must device for HVAC engineers use.

Features :

- One of the most **robust** hot wire sensors on market to get accurate value and long sensor life time.
- **8mm** dia. probe head with **1M** long telescopic tube. Enclosed with O-ring to mark the depth of duct.
- Telescopic tube with alignment marking to show the correct AIR IN direction for accurate measuring.
- Non-slip ergonomics rubber grip
- **Metric & Imperial** selectable
- **cfm, l/s, cmh, cmm** four different air volume units to select from
- **Low** battery indicator
- Display **Max/Min/Time Avg./Point Avg.**
- **Hold** function freezes current readings
- **Sleep and non-sleep** selectable
- Powered by 4 **AAA** batteries
- **Back light** for dark places

MATERIAL SUPPLIED

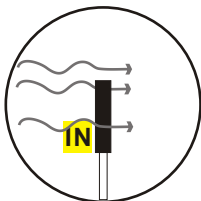
This package contains:

- ✓ The meter x 1
- ✓ Probe (telescopic tube & rubber grip) x1
- ✓ Battery x 4 (AAA size)
- ✓ Operation manual x1
- ✓ O-ring x1pack
- ✓ Magnet x 1
- ✓ Hard carry case x1

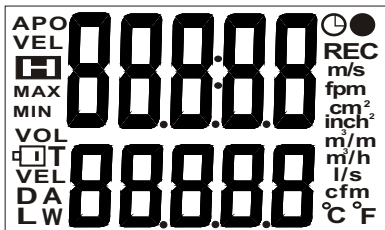
REMINDER

Important:

1. This meter is ideally designed for duct airflow measurement. Accurate & robust sensors are equipped. Nevertheless, Avoid to hit the probe head may extend the probe life time.
2. Correctly face the "IN" mark to the wind source for accurate result.



LCD & KEYPAD



KEY PAD



Green text means press longer time

1. **SET**

- Press to turn on the meter. 5 seconds warm up time and then in auto power off mode (APO)
- Press to turn off the meter.
- When meter is on, pressing this key more than 5 sec. to enter setup.
- Auto power off after 10 mins keypad inactivity.
- Non-sleep mode is also available.

2. **MODE**

- Press to select different modes. The upper display remains as current air speed, the lower display can be air volume or temp.
- In Max/Min mode, the upper display is current air speed, the lower display can be maximum or minimum air speed, air volume or temperature.

-In time/point average mode, the upper display remains as cumulative time or point, the lower display can be average air speed, air volume or temperature.

3. **AVG.**
Reset

- Press once to enter time average mode. The maximum time is one hour.
- Press twice to enter point average mode. The maximum point is 999 points
- Press key longer time to reset the max. and min. Value.

4. **▲ M_X^N**
HOLD

- Press once to freeze the reading.
- Press twice to enter maximum mode. This value counts from power on or from previous reset moment.
- Press again to enter minimum mode. This value counts from power on or from previous reset moment.
- Press one more time to return to normal display.
- In setup, press this key to adjust.

5. **REC**
▼

- In time/point average mode, press to record value or pause recording.
- In setup, press this key to adjust.


6. **ESC**
L↔W

- In average and setup status, press to quit and return to normal status.
- In duct length (L) and width (W) setting of setup mode, press to switch from L to W.

PROBE/POWER SUPPLY

1. The probe is permanently attached to the meter
2. Power supplied by (4) AAA batteries.

LOW BATTERY

Battery indicator “” will display on LCD while battery power is low. Suggest to change the batteries.

TELESCOPIC TUBE



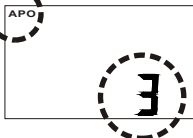
Laser etched telescopic tube is not easy to read in dim places, using o-ring to mark determined depth is faster. You can move the depth marking easily.


OPERATION

POWER ON/OFF

1. Press “ SET “ to power on meter. 5 seconds warm up time and then in auto power off mode (APO).

Press again to power off.



2. Auto power off after 10 mins keypad inactivity.
3. Press “ SET “ & “ $\frac{\Delta Mx}{\text{HOLD}}$ “ at the same time to power meter on and keep it in non-sleep mode. APO will not display on LCD.



BACKLIGHT

Press any key may activate backlight for 10 seconds. The feature is useful while operating meter in dim places.

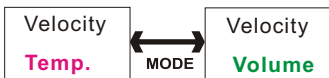
SETUP

Setup basic parameters to customize this meter fitting your application. Please see details in page 9

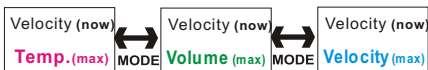
MODE

This meter provides three parameters: velocity, volume and air temp. Press “MODE” to switch in any status you are in.

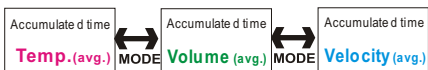
In normal status



In MAX or MIN status



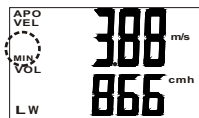
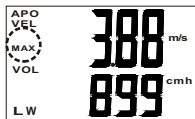
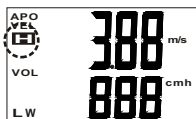
In TAVG/PAVG status



HOLD/MIN/MAX

This meter allows you to freeze current reading or check maximum and minimum reading. Press “ $\frac{\blacktriangle \text{Mx}}{\text{HOLD}}$ ” to have this feature.

The maximum and minimum reading is counted from power on. You can press “Reset” longer time to clear up and re-count.

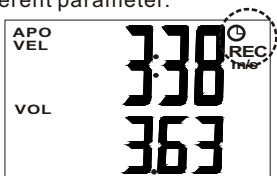


AVERAGE - time average

Press " $\frac{\text{AVG.}}{\text{Reset}}$ " once to choose time average feature. "🕒" icon appears on LCD.

Press " $\frac{\text{REC}}{\blacktriangledown}$ " to count, press " $\frac{\text{REC}}{\blacktriangledown}$ " again to pause. To continue, press " $\frac{\text{REC}}{\blacktriangledown}$ ", to quit, press " $\frac{\text{AVG.}}{\text{Reset}}$ " **twice** to return to normal status.

The upper display is cumulative time, max. time is 59:59. The lower display is average value. Use "MODE" key to switch to different parameter.

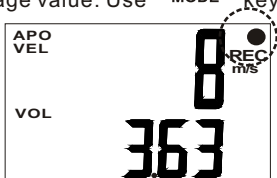


AVERAGE - point average

Press " $\frac{\text{AVG.}}{\text{Reset}}$ " twice to choose point average feature. "●" icon appears on LCD.

Press " $\frac{\text{REC}}{\blacktriangledown}$ " to count, to continue, press " $\frac{\text{REC}}{\blacktriangledown}$ ", to quit, press " $\frac{\text{AVG.}}{\text{Reset}}$ " once to return to normal status.

The upper display is cumulative points, max. is 999 points. The lower display is average value. Use "MODE" key to switch.



SETUP

When the meter is on, hold down **⏻SET** for more than 5 sec to enter setup mode. Press "**REC**" or "**▲Mx**" to select and press "**⏻SET**" to enter.

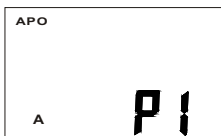
To exit setup, press **ESC**/**L↔W** in P1 ~ P4 and it returns to normal mode.

P1: DUCT AREA TYPE

Go into P1 for setting the area type of duct. The options are Diameter (D), Area (A) and Length * Width (L W).

Press "**▲Mx**/**HOLD**" or "**REC**/**▼**" to choose P1. Then, press "**⏻SET**" to enter and select the type you need through pressing "**⏻SET**" key.

Once you decide, press "**REC**/**▼**" as confirmation and enter to P2. You can also press "**ESC**/**L↔W**" as confirmation and quit to normal status.



P2: AREA VALUE INPUT

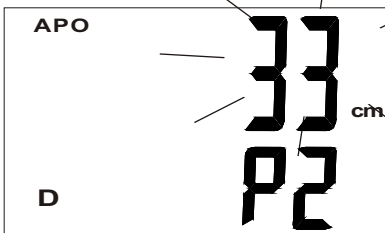
Go into P2 for area value input. The options are:

- *0~9999 cm² or inch² for Area (A) option
- *0~99 cm or inch for diameter (D) option
- *0~99cm or inch for L W option

Press "**REC**/**▼**" to choose P2. Then, press "**⏻SET**" to enter and start to adjust the value to what you need.

Press " $\frac{\triangle Mx}{\text{HOLD}}$ " and " $\frac{\text{REC}}{\nabla}$ " to adjust value more or less. To adjust different decimal, press " $\frac{\text{AVG.}}{\text{Reset}}$ " to choose.

After setting, press " SET " to confirm



If the type is L W, press " $\frac{\text{ESC}}{\text{L}\leftrightarrow\text{W}}$ " to switch from L to W.

Press " $\frac{\triangle Mx}{\text{HOLD}}$ " and " $\frac{\text{REC}}{\nabla}$ " to adjust value more or less. To adjust different decimal, press " $\frac{\text{AVG.}}{\text{Reset}}$ " to choose.

After setting, press " SET " to confirm

P3 UNIT

Go into P3 for unit selection.

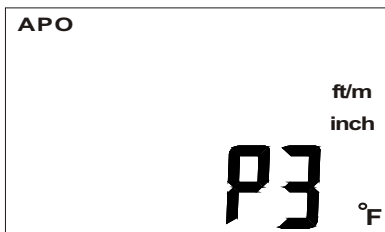
The options are:

*metric: m/s, cm and °C

*Imperial: ft/m, inch and °F

Press " $\frac{\text{REC}}{\nabla}$ " to choose P3. Then, press " SET " to enter and choose the unit you need through pressing " SET ".

Once you decide, press " $\frac{\text{REC}}{\nabla}$ " as confirmation and enter to P4. You can also press " $\frac{\text{ESC}}{\text{L}\leftrightarrow\text{W}}$ " as confirmation and return to normal status.

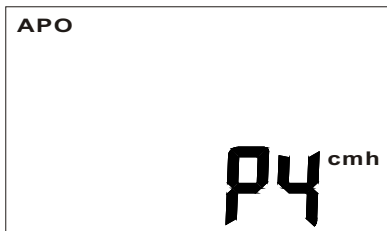


P4: WIND VOLUME UNIT

Go into P4 for wind volume unit selection . The options are cmh, cmm, cfm and l/s.

Press “ $\frac{\text{REC}}{\blacktriangledown}$ ” to choose P4. Then, press “ ⏻SET ” to enter and choose the unit you need through pressing “ ⏻SET ”

Once you decide, press “ $\frac{\text{REC}}{\blacktriangledown}$ ” as confirmation and enter to P1. You can also press “ $\frac{\text{ESC}}{\text{L}\leftrightarrow\text{W}}$ ” as confirmation and quit to normal status.





TROUBLESHOOTING

1. Power on but no display

- a) Make sure the time of pressing key is more than 0.1 second.
- b) Check the batteries are in place and in good contact with correct polarity.
- c) Replace a new battery and try again.
- d) Move away the battery for one minute and put back again. Try again.

2. Display disappear

- a) Check whether the low battery indicator displayed before Display disappear, if yes, replace a new battery.
- b) Turn on the meter by pressing  SET +  key to disable auto power off function for long time using.

3. E 2

- a) The value is underflow. Put probe in normal condition to recover.

4. E 3

- a) The value is overflow. Put probe in normal condition to recover.

5. E4

- a) The original data that is relative to this value is E2 or E3 now. Once E2 or E3 is cleared, E4 will be cleared as well.

6. E31

- a) Temp. related circuit error. Need after sales service.

7. E32

- a) memory IC error. Need after sales service.

SPECIFICATION

Model	860057
Wind speed range	0.15~20.0M/S (30.0 ~3937 ft/m)
Wind speed resolution	Below 10 m/s:0.01, above 10 m/s:0.1 Below 100 ft/m:0.1, above 100 ft/m:1
Wind speed accuracy	+/- (5% of reading+0.1) m/s +/- (5% of reading+20) ft/m
Air temp. range	-10.0~50.0°C (14.0~122.0° F)
Air temp. resolution	0.1°C /0.1° F
Air temp. accuracy	0.0°C~50.0°C is +/-1.0°C(1.8° F), Below 0°C is +/-1.5°C (2.7° F)
Wind speed response time	0.5 second (typical)
Temp. response time	60 seconds (typical)
LCD update	every second
Air volume display	0 to 99999
Air volume resolution	0.1(0 to 9999.9) or 1 (10000 to 99999)
Air volume unit	cmm, cmh, l/s, cfm
LCD size	26(H)x44(W)mm
Operating temp.	0~50°C
Operating RH%	Humidity<80%
Storage temp.	-10~50°C
Storage RH%	Humidity < 90%
Dimension(mm)	175x70x33 (meter)
Probe	8mm diameter
Telescope tube	96cm (38 inch) extended. 26.5cm (10 inch) storage
Weight	331 g
Battery	4pcs AAA batteries
Standard Package	Meter with built-in hotwire probe/Battery/ Magnet/Manual/O-rings/Hard carry case

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 returned along with good packing to prevent any damage in shipment and insured against possible damage or loss.

WARRANTY

The meter is warranted to be free from defects in material and workmanship for a period of one year from the date of purchase. This warranty covers normal operation and does not cover battery, misuse, abuse, alteration, tampering, neglect, improper maintenance or damage resulting from leaking batteries. Proof of purchase is required for warranty repairs. Warranty is void if the meter has been opened .

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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

Wireless Transmitter