DAVM+

Digital Air Flow/ Volume Meter Plus

- Air Flow/FPM
- Air Volume/CFM
- Temperature°F/°C
- Humidity/5% RH
- Light Level/LUX

TABLE OF CONTENTS

1. FEATURES

* 5 in 1 professional measuring instrument: Anemometer,
  Air flow, Hygrometer, Thermometer, and Light meter.

* Multi channel display for relative humidity, temperature,
  and air velocity measured values at the same time.

* Air velocity measuring units selectable by pressing button on
  the front panel for five kinds of units.

* Air flow (CFM. CMM) measurement by setting the desired area
  dimension.

* Low-friction ball bearing mounted wheel design provides
  high accuracy at high and low air velocity.

* High precision thin-film capacitance humidity sensor with
  fast response to the humidity changes.

* °F/°C selectable by pressing button on the front panel.
  Lux/Feet-candle selectable by pressing button on the front panel.

* Standard type K (NiCr-NiAl) thermocouple input jack
  suitable for all kinds of type K probe.

* Built-in microprocessor circuit assures excellent
  performance and accuracy.

* Button arrangement allows easy operation.
  Maximum and minimum value with recall.

* Hold function to freeze the current reading value.

* Lightweight and small size case design
  are suitable for handling with one hand.

* Wristlet design provides extra protection to the instrument
  especially for user one hand operation.

2. SPECIFICATIONS

2-1 General Specifications

Display	8 mm LCD display
Measurement	Anemometer, Humidity, Temperature, Light, Air flow (CFM/CMM).
Operating Max. Humidity	80% RH.
Operating Temperature	32 to 122°F (0 to 50°C)
Over Input Display	Indication of "- - - - "
Power Supply	006P DC 9V battery (Heavy duty type)
Power Consumption	Approx. DC 6.2 mA
Weight	5.6 oz (160g)
Dimensio	6.14x2.36x1.29 inch 156 x 60 x 33 mm
Standard Accessory	SCASE Carrying Case
Optional Accessories	TPFG Thermocouple Probe TPFDA Approved Thermocouple TPP Thermocouple Piercing Probe TPS Thermocouple Surface Probe

2-2 Measurement Specifications

Measurement		Range	Resolution
Air velocity	ft/min	80 to 5,910 ft/min	1 ft/min
	m/s	0.4 to 30.0 m/s	0.1 m/s
	km/h	1.4 to 108.0 km/h	0.1 km/h
	MPH	0.9 to 67.0 mile/h	0.1 MPH
	knots	0.8 to 58.3 knots	0.1 knots
	Temperature	32 to 122 °F	0.1 °F
	(thermister)	0 to 50 °C	0.1 °C

Measurement		Range	Resolution
Air flow	CFM	1,908,400 CFM	0.001 to 100
	cube feet/min		CFM
	CMM	54,000 CMM	0.001 to 1
	cube meter/min	CMM	

Measurement		Range	Resolution
Humidity	% RH	10 to 95 % RH	0.1 % RH
	Temperature	32 to 122 °F	0.1 °F
	(thermister)	0 to 50°C 0.1 °C	

Measurement		Range	Resolution
Light	Lux	0 to 2,200 Lux	1 Lux
		1,800 to 20,000 Lux	10 Lux
* auto range	Ft-cd	0 to 204.0 Fc	1 Ft-cd
		170 to 2,000 Fc	1 Ft-cd

Measurement	Range	Resolution
Temperature (Type K)	-148 to 2,372 °F	0.1 °F
Optional	-100 to 1,300 °C	0.1 °C

Measurement	Range	Accuracy
Air velocity	80 to 5,910 ft/min	
	0.4 to 30.0 m/s	≤ 20 m/s : ± 3% F.S.
	1.4 to 108.0 km/h	> 20 m/s : ± 4% F.S.
	0.9 to 67.0 mile/h	
	0.8 to 58.3 knots	
	32 to 122 °F	± 2.5 °F
	0 to 50 °C	± 1.2 °C

Remark :
ft/min : feet per minute   MPH : miles per hour
m/s : meters per second   knots : nautical miles per hour
km/h : kilometers per hour   Ft-cd : feet candle

Measurement	Range	Accuracy
Humidity	10 to 95% RH	*< 70% RH :*
		± 4% RH
		≥ 70% RH :
		: ± (4%rdg+1.2%RH)
	32 to 122 °F	± 2.5 °F
	0 to 50 °C	± 1.2 °C

Measurement	Range	Accuracy
Light	0 to 20,000 Lux	± 5% rdg ± 8 dgt
	0 to 2,000 Fc	

Measurement	Range	Accuracy
Temperature	-148 to 2,372 °F	±(1% rdg + 2°F)
(Type K)	-100 to 1,300 °C	±(1% rdg + 1°C)

Measurement	Area setting
CFM	0.01 to 322.92 feet square
CMM	0.001 to 30.000 meter square

3. FRONT PANEL DESCRIPTION
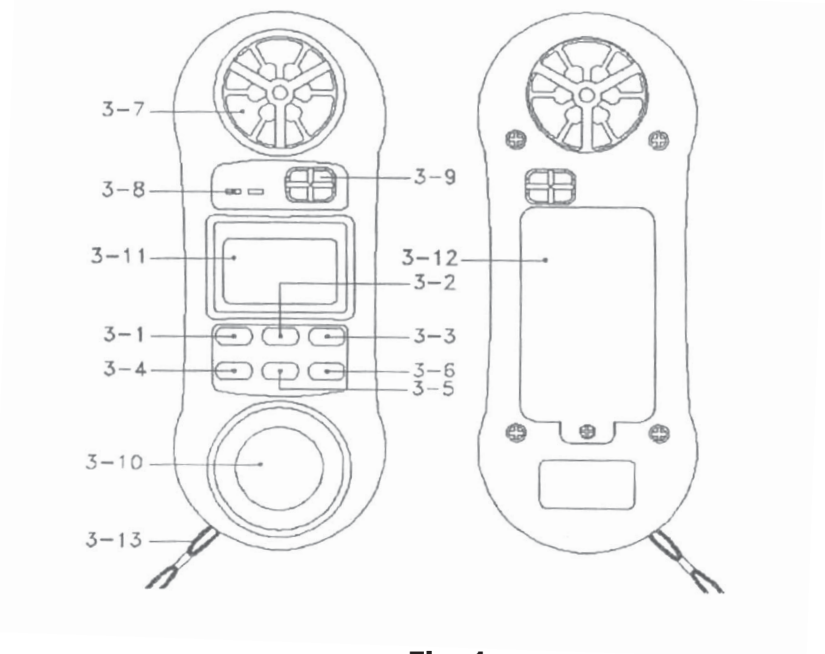
Fig. 1

3-1 ON/ESC Button

3-2 Hold Button

3-3 REC/Enter Button

3-4 Unit/Zero/ ◀
   (CFM/CMM) Button.

3-5 °F/°C/ ▲
  Lux/Ft-cd

  Area-set Button

3-6 Function/ ▼ Button

3-7 Anemometer Sensor

3-8 Thermocouple Input Socket

3-9 Humidity Sensor
3-10 Light Sensor

3-11 LCD display
3-12 Battery Compartment /
Cover
3-13 Wristlet

4. MEASURING PROCEDURE

4-1 Air Velocity Measurement

1) Power on the instrument by pressing the " ON Button " (3-1, Fig.1).
2) Select the Anemometer function by pressing " Function Button " (3-6, Fig.1).
3) Press the " Unit/Zero Button " (3-4, Fig.1) to select unit that you want and then face the " Anemometer Sensor " (3-7, Fig.1) to the source of wind.
4) Allow time for the reading to become stable and note the value indicated. From a practical point of view the velocity may fluctuate.

4-2 Temperature Measurement (Thermocouple)

1) Power on the instrument by pressing the " ON Button " (3-1, Fig. 1)..
2) Plug a type K thermocouple probe in the " Thermocouple Input Socket " (3-8, Fig.1).
3) Select the Temperature function by pressing " Function Button " (3-6, Fig.1)
4) Press the " °F/°C Button " (3-5, Fig.1) to select °F or °C unit.
5) Contact the Thermocouple Sensor Head with measuring object and the reading value will be displayed on the LCD display.

Measuring Consideration of Temperature Measurement (Thermocouple)

* Please make sure the polarity is correct when you plug a thermocouple probe in the Temp. input socket.

* The temperature difference between thermocouple probe and thermometer will cause an inaccurate measuring result. Therefore, for the best measuring and accuracy performance, whenever changing a probe or plugging a new probe, thermal equivalent between probe plug and meter's input socket is a necessary condition. Thermal equivalent procedure may take few minutes and apply only when the probe has been exposed to an ambient temperature different from the meter.

4-3 Humidity & Ambient Temperature Measurement

1) Power on the instrument by pressing the " ON Button " (3-1, Fig. 1).
2) Select the Relative Humidity function by pressing " Function Button " (3-6, Fig. 1).
3) At the mean time the reading value of relative humidity and temperature will be displayed on the LCD display.
4) When the meter is applied in a new environment, a few minutes are required to reach a stable condition.

4-4 Light Measurement

1) Power on the instrument by pressing the " ON Button " (3-1, Fig.1).
2) Select the Light Measurement function by pressing the "Function Button" (3-6, Fig. 1) until the light value is displayed. The light display digits are oriented 180° from the other function displays for easy exposure and output reading of the light sensor.
3) Press the " Lux/Ft-cd Button " (3-5, Fig.1) to select measuring unit " Lux " or " Ft-cd ".

Zero Offset Adjustment of Light Function :

* For best results zero the light sensor prior to use in a
   dark environment. Placing the light sensor end of the
   meter under a desktop or flat surface so as to block
   any light can accomplish this. Then press the
   " Unit/Zero Button " (3-4, fig.1) to set the meter
   indication to zero.

* Zero point can drift due to environment temperature
   and battery power change as well as for other reasons.
   It is recommended that the zero be checked
   frequently using the above procedure.

* Zero adjustment only can be executed if the measurement
   Light value $\leq$ 20 Lux.

4-5 AIR FLOW (CFM. CMM) MEASUREMENT

1) Power on the instrument by pressing the " ON
   Button " (3-1, Fig.1).
2) Select the Air Flow function by pressing
   " Function Button " (3-6, Fig.1) until the display show
   unit of CMM or CMM.

 * Air flow unit " CFM " or " CMM " can be select by
   pressing the " CFM/CMM Button " (3-4, Fig.1)
 * Area size can be set by pressing the " Area-Set
   Button " (3-5, Fig.1), then use the

   Button (3-5, Fig.1)
   Button (3-6, Fig.1)
   Button (3-4, Fig.1)
to select the desired area size.

* For the CFM measurement, the area size is " feet square ",
  the lower display will show " F-2 ".
  For the CMM, the area setting size is from 0.01 to 322.92 feet
  square.

* For the CFM measurement, the area size is " meter square ",
  the lower display will show " m-2 ".
  For the CMM, the area setting size is from 0.001 to 30.000
  meter square.

4) Use the hand to hold the meter,
   face the " Anemometer Sensor " (3-7, Fig.1) to the
   measured wind. In the same time the air flow value

   (CFM, CMM) will show on the LCD display.

5. OTHER FUNCTIONS

5-1 Hold Function

Pressing the " Hold Button (3-2, Fig.1) " will freeze
the current reading value with a "HOLD" symbol on the
display.

5-2 Data Record Function

1) The Data Record function records & displays the maximum
   and minimum reading values. Start the Data Record function
   by pressing the " REC Button " (3-3, Fig.1) once.
   There will be a " REC " symbol on the display.

2) With the REC symbol on the display :
(a) Press the " REC Button " (3-3, Fig.1) once and the " Max " symbol along with the maximum value will appear on the display.
(b) Press the " REC Button " again, the " Min " symbol along with the minimum value will appear on the display.
(c) To exit the memory record function, press the " REC Button " continuously for at least 2 seconds. The display will revert to the current reading.
(d) Clear the Max./Min. value recorded by pressing the " Hold Button " (3-2, Fig.1) once. Previous recorded Max./Min. value will be given up and then revert to the REC. function keep on recording.

5-3 Auto Power Off Disable

In order to prolong the battery life, the instrument has "Auto Power Off " function. The meter will switch off automatically if no buttons are pressed for around 10 minutes.

6. BATTERY REPLACEMENT

1) When the LCD display shows " ⊞⊟ " symbol, it is necessary to replace the battery. However measure ment may still be made for several hours after the low battery indicator appears.

2) Open the " Battery Compartment / Cover " (3-12, Fig.1) and remove the battery.

3) Install a 9V battery (Alkaline or Heavy duty type) and then reinstate the cover.