

# INSTRUCTION MANUAL

## THERMO ANEMOMETER

### DAFM2



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## Introduction

The DAFM2 is used to check air velocity FPM (feet per minute) and CFM (cubic feet per minute) in residential, light commercial and standard commercial systems. This meter eliminates the need for analog charts. It is a hand-held, battery-powered meter, that makes air flow and velocity measurements with an accuracy of  $\pm 2\%$ . Temperature measurements are made with an accuracy of  $\pm 1\%$ .

### Features include

- Convenient direct digital readout of actual air flow or velocity with out using conversion charts
- Large dual digital display for simultaneous air flow or velocity and temperature measurements
- Air flow and velocity measurements accurate to  $\pm 2\%$
- Temperature measurements accurate to  $\pm 1^\circ\text{F}$  ( $\pm 0.6^\circ\text{C}$ )
- Battery saving automatic power off
- Low battery icon
- Data hold function
- MAX/MIN/AVG recording function

## Safety Notes

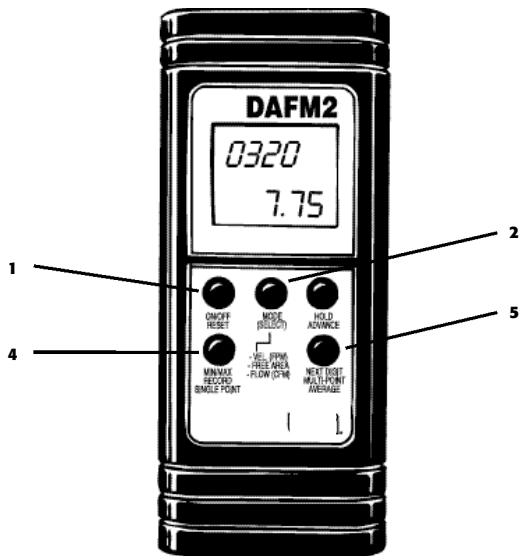
Before using this meter, read all safety information carefully. In this manual the word "**WARNING**" is used to indicate conditions or actions that may pose physical hazards to the user. The word "**CAUTION**" is used to indicate conditions or actions that may damage this instrument.



### WARNING!

Objects striking the fan may damage meter.

## Controls and Indicators



### 1. ON/OFF RESET

### 2. MODE (Select)

- VEL (FPM)
- FREE AREA
- FLOW (CFM)

### 3. HOLD ADVANCE

### 4. MIN/MAX RECORD Single Print

### 5. NEXT DIGIT Multi-point Average

### Measuring Air Velocity

(Single Point) feet per minute (FPM)

1. Press the **ON/OFF** button to turn the meter on. Every display feature will appear for a few seconds when the meter is turned ON.
2. The DAFM2 is ready for use when the LCD displays "vel" (the default mode) in the upper left corner, and the temperature appears in the lower right corner (Fig 1).



(Fig 1)

3. Hold the sensor in front of an air source. The meter will display Feet Per Minute (FPM) readings.

### Displaying a continuous moving average

The DAFM2 has the ability to display a continuous moving average for up to two hours.

1. Turn the power ON.
2. Place the sensor in front of an air flow source.
3. Press **MIN/MAX** record key once. An AVG in the lower left corner of the display confirms the meter is in the continuous moving average measurement mode. The display will update once per second (Fig 2).



(Fig 2)

### MIN/MAX/AVG (Single Point)

To obtain MIN/MAX/AVG readings on a single point.

1. Turn the meter ON.
2. Place the sensor in front of an air flow source.

- Press **MIN/MAX** record button. The unit will begin to record the readings. The instrument displays the average velocity by default. Each of the **MIN/MAX** button cycles the display through:
  - Real-time readings
  - MIN velocity
  - MAX velocity
  - Back to AVG velocity

**Note:** Feet Per Minute (FPM) readings can be converted to CFM readings.

- Press the **HOLD** button to store the readings before moving the meter away from an air flow source.
- Press **ON/OFF RESET** twice to clear the current MIN/MAX average readings and once to turn the meter OFF.

### Direct measuring of air flow (Single Point) CFM

Air velocity measurement is calculated by multiplying the air velocity readings times the free area dimension. Free area is publishing by the grill and register manufacturer you are servicing.

Determine the free area of the air source you are measuring and enter it into the meter.

- Turn the power ON.
- Press the mode select once (you will hear one beep). The meter will display **AREA** in upper case letters at the top of the display, and **1.111**, with a flashing initial digit (Fig 3). This is the free area default setting.



(Fig 3)

- To increase numbers, the flashing digit can be changed by pressing the **HOLD/ADVANCE** key.
- To change the value of other digits, press the **NEXT DIGIT** key.
- Press the **RECORD** key. The flashing will stop. Then press the **HOLD** key to save the changed value. The meter returns to FLOW mode automatically.
- Press the **MODE** select button once to return to the "vel" mode.

The meter is now ready to measure air flow (CFM).

### MIN/MAX/AVG CFM READING

Repeat steps 1-6 from earlier instructions to obtain MIN/MAX/AVG CFM readings from a single point.

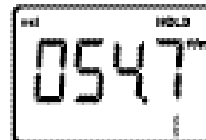
### Air velocity average for multi points

- Turn the meter ON, and position the fan at the first point to be measured. As soon as the first measurement is completed, press the **HOLD** key (you will hear a single beep) and release it. The display will show a HOLD indicator above the reading (Fig 4). The reading is locked at the value display when hold was pressed.



(Fig 4)

- Press the **MIN/MAX** record key (you will hear a single beep) and release it. The display will show a digit numbered from 1 to 8. This number represents the point that is being recorded (Fig 5).



(Fig 5)

Repeat this process until all desired points have been measured and recorded.

- Once all measurements have been recorded, press the **NEXT DIGIT/MULTIPOINT AVERAGE** key. The meter will display the average air velocity reading and number of points measured (Fig 6). The meter can record a total of eight (8) points at one time.



(Fig 6)

- To CLEAR THE MEMORY of current Multi Point Average readings, press and hold the **NEXT DIGIT/MULTIPOINT AVERAGE** key until the unit beeps twice, then release. The unit must be in velocity/FPM mode to clear current average readings.

### Air Flow (CFM) Average for Multipoints

Once the multi-point average is determined:

- Press the **MODE** button once, and confirm the correct free area setting is locked into the meter. (If the free area setting must be adjusted, make necessary changes now).
- If the free area setting is correct, press the **MODE** button again to enter the meter's air flow mode.

- The meter will now display an average air flow reading and the number of points measured (Fig 7).



(Fig 7)

The meter's free area dimension has been set to 1.111 square feet, a commonly-used free area dimension in the U.S. If you want to measure the air flow for a single point without changing the area dimension, power the meter ON, position the fan, and then press the **MODE** key twice. This will put you into air flow (CFM mode). The air flow (CFM) display is equal to the current air velocity reading (FPM x FREE AREA = CFM) times 1.111 square feet.

**SUGGESTION:** Set the free area dimension before starting to measure the air velocity, so after you measure the air velocity, you can jump to the air flow mode to view the cubic feet per minute reading without further changing the free area dimension.

### Non Sleep Mode

#### To bypass the auto power off:

For continuous operation, press the **ON** and **HOLD** buttons at the same time, then release ON only. An "n" will appear on the LCD. You can then release the HOLD key. The meter will remain ON until the meter is turned off.

### Changing default settings

- The default setting for the air velocity measuring unit is "**feet/minute**". The default setting for the unit of temperature is "**F**". To change the measuring units to "**meters/sec**" and "**C**".
  - Turn the meter ON by pressing the **ON** and **AVERAGE** keys at the same time. Release **ON** button first. The LCD will display a small signal, "**ft/m**", in the upper right corner and an °F in the lower right corner. Then release the **AVERAGE** key.
  - Press the **HOLD** key to change the measuring units to the metric system. Press the **AVERAGE** key to return to the SAE/imperial measuring units.
  - Press the **RECORD** key. An "**S**" will show on the LCD. Press the **HOLD** key to confirm and save the changed value. At this time, "**2400**" appears on the LCD. Press **RECORD**. An "**S**" appears on the LCD. Press the **HOLD** key to confirm, and save the value.

### Auto power off

The meter will turn off automatically after 20 minutes, to save the battery. This will be preceded by three (3) beeps.

## Troubleshooting

### Low battery icon visible on display or no display

Change the 9 volt battery in the meter.

### E6 or continuous beeping

This signal indicates the probe is disconnected from the meter body or is not properly connected.

### Sensors fan will not turn

Purchase new sensor probe.

## Battery Replacement

This meter requires a standard 9 volt battery for operating power. Remove the screw from the lower back of the meter. Lift the panel out and remove the battery. Reverse the process to install a new battery and replace the cover.

## Specifications

Airflow:	125 - 4900 ft/min 0.7 - 25 m/sec	
Digital display (LCD):	Counts - 4000 Updates 3 times/sec	
Temperature:	-10° to +50°C 14° to +122°F	
Battery type:	9 volt	
Battery life:	100 hrs. typical (alkaline)	
Display type:	LCD	
Display size:	1 1/4" x 1 5/8" (37 mm x 42 mm)	
Max reading:	9999	
Size (H x W x D)	7 1/8" x 2 3/4" x 1 3/8" (181 mm x 71 mm x 38 mm)	
Diameter of fan:	2 7/8" (70 mm)	
Auto power off:	20 minutes bypass	
ACCURACY		
Airflow	Resolution	Accuracy
125 - 4900 ft./min. 0.7 - 25 m/sec	1 0.01	±2% ±2%
Temperature -10 to 50°C +14 to 122°F	0.1 0.1	±0.6°C ±1.0°F

## Warranty

IMR Environmental Equipment, Inc. states the following:

IMR hereby grants the following worldwide IMR warranty for an IMR analyzer purchased from an authorized dealer.

1. The IMR warranty shall entitle every IMR customer to demand a free replacement or repair of the defective parts from any IMR dealer authorized for the respective IMR unit.
2. The IMR warranty shall be granted on the factory new unit and shall commence on the date of the delivery of the original IMR unit to the customer. It shall last for a period of twelve months regardless of the type and the intensity of use and regardless of any change of owner, which may occur during this warranty period.
3. The IMR warranty shall refer to absence of faults with respect to the state of the art nature of the sold unit in terms of material and finish. The warranty for all parts fitted during the twelve-month warranty period shall end with the unit warranty.
4. After the establishment of a material or production fault by IMR or the authorized IMR dealer, the faults will be eliminated by means of free repair or replacement. Replaced parts shall become the property of IMR.
5. No warranty claims may be made for maintenance and setting work, cleaning or other utility materials required for the function of the unit and other wear parts unless they have a direct bearing on work performed under the warranty.
6. The terms and conditions for the acknowledgement of this warranty shall be the presentation of the fully completed warranty card, which must contain the confirmation from the authorized IMR dealer on its delivery and, if applicable, the prescribed maintenance work.
7. The IMR warranty shall only be applicable if
  - a. The analyzer has been maintained in accordance with the instructions issued by the manufacturers and the operating instructions by an authorized IMR dealer.
  - b. Only original IMR spare parts have been used for any repairs.
  - c. The unit has been used properly, the operating instructions observed and the unit has not been used for a purpose other than the one for which it has been designed.
  - d. The IMR unit has been left in its original design and meets the original IMR specifications.
  - e. The fault is not due to external influences or use for a purpose other than the one for which it has been designed.
  - f. Exclusively authorized IMR dealers have made repairs to the IMR unit.
  - g. The IMR unit has been sent to an authorized IMR dealer immediately after the fault was discovered.
8. Warranty time for the analyzer, including electrochemical sensors is 12 months.

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