

1 YEAR
WARRANTY



User's Guide

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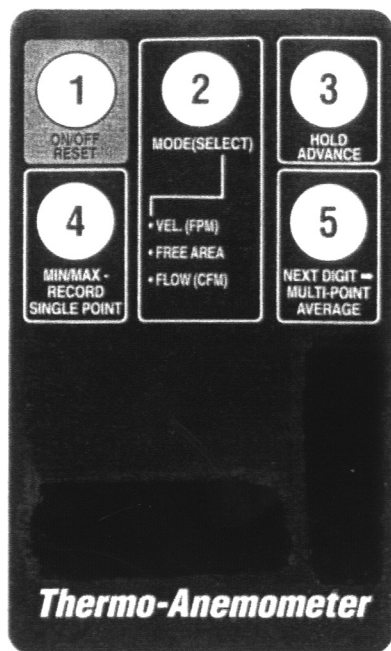
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The information contained in this document is believed to be correct, but OMEGA Engineering, Inc. accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, human applications.



1. ON/OFF RESET
2. MODE (SELECT)
 - VEL. (FPM)
 - FREE AREA
 - FLOW (CFM)
3. HOLD ADVANCE
4. MIN/MAX RECORD SINGLE POINT
5. NEXT DIGIT MULTI POINT AVERAGE

A. MEASURING AIR VELOCITY (SINGLE POINT) FEET PER MINUTE (FPM)

1. Press the ON/OFF button and turn meter on. Meter will show full display when first powered on.
2. Unit is ready for use when LCD display shows "vel" in upper left corner and temperature in lower right corner. (fig. 1)
3. Hold sensor in front of air source, instrument will display feet per minute readings (FPM).

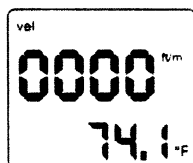


fig. 1

B. CONTINUOUS MOVING AVERAGE

The CFM Master has the ability to display continuous moving average for up to two (2) hours

1. Power unit ON
2. Place sensor in front of air flow source.
3. Press MIN/MAX record key and unit will begin to display moving average.
Meter will record the reading every second

C. MIN/MAX/AVG (SINGLE POINT)

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

- 1 Power unit ON
- 2 Place sensor in front of air flow source.
- 3 Press MIN/MAX record key.
 - A. The unit will begin to record readings.
4. Press HOLD prior to moving instrument away from air flow source to store readings.
 - A Press MIN/MAX key once to display AVG velocity readings
 - B Press MIN/MAX key again to display MIN velocity readings
 - C Press MIN/MAX key again to display MAX velocity readings.
 - D Press MIN/MAX key again to display current velocity.

*Feet per minute (FPM) readings can be converted to CFM readings (See section D, steps 2 - 5).

- 5 Press ON/OFF RESET to clear the current MIN/MAX average readings.

D. DIRECT MEASURING AIR FLOW (SINGLE POINT) CFM

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

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

- 1 Power unit ON.
- 2 Press mode select once (you will hear one beep)
Meter will display "AREA" in upper case and "1.111" with a flashing digit. (fig 2) This is the free area default setting.
- 3 To increase numbers the flashing digit can be changed by pressing HOLD/ADVANCE key
- 4 To change value of other digits press NEXT DIGIT key
- 5 Press the RECORD key. The flashing stops and then press the HOLD key to save the changed value. The meter returns to FLOW mode automatically

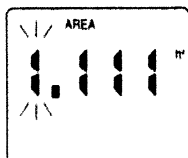


fig. 2

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

MIN/MAX AVG CFM Readings

*Repeat steps 1-4 in section B to obtain MIN/MAX/AVG CFM readings from single point.

E. AIR VELOCITY AVERAGE FOR MULTI POINTS

- 1 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. The display will show a HOLD above the reading (fig. 3)
The reading is now being held

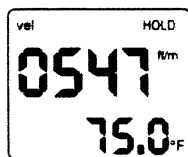
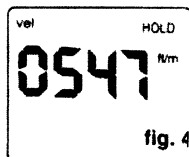


fig. 3

2. Press MIN/MAX RECORD key (You will hear a single beep), and release. (the display will show a digit 1-8). This number represents the point that is being recorded (fig. 4)

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



3. Once all measurements have been recorded press NEXT DIGIT/MULTIPOINT AVERAGE key. The unit will display the average air velocity reading and number of points measured (fig. 5).

Unit can recorded a total of 8 points at one time.

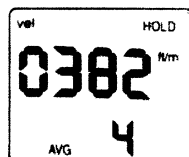


fig. 5

To Clear Memory of Current Multi Point Average Readings

Press and hold NEXT DIGIT/MULTIPOINT AVERAGE key until unit beeps twice, then release. Unit must be in velocity/FPM mode in order to clear current average readings

F. TO OBTAIN AIR FLOW (CFM) AVERAGE FOR MULTIPPOINTS

Simply complete steps 1-3 in D. Once all the multi-point average is determined:

1. Press MODE button once and confirm correct free area setting is locked into instrument. (If free area setting must be adjusted make necessary changes now. See section C Steps 2-4).
2. If free area setting is correct press MODE button again to enter air flow mode.
3. Unit will now display average air flow reading and number of points measured (fig. 6).

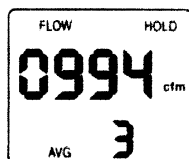


fig. 6

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

We would suggest to set the free area dimension before you start measuring 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 without further changing the free area dimension.

To bypass auto power off: for continuous operation press ON and HOLD at the same time and then release ON only. An "n" appears on the LCD then you can release the HOLD key. The instrument will remain on until the OFF button is pressed.

H. HOW TO CHANGE THE DEFAULT SETTING/IMPERIAL TO METRIC

- 1 The default setting for the measuring unit of air velocity is feet/min. and the default setting for the unit of temperature is °F. You can change the measuring units to meter/sec and °C by following steps:
 - 2 Turn on the meter by pressing ON and AVERAGE keys at the same time. Release ON first. The LCD display will show small printing of "ft/m" on the right upper corner and a "°F" on the right lower corner and then release AVERAGE
 - B Press HOLD key to change the measuring units to metric system and you can press AVERAGE key for imperial measuring units.
 - C. Press RECORD key, an "S" will show on the LCD. Press HOLD to confirm and save the changed value. At this time, the baud rate "2400" (default) appears on the LCD to be followed by step 1 for changing RS232 output (if necessary).

I. SETTING THE RS232 OUTPUT

- 1 Following Step H 2 C, you will see a "2400" (default) number on the screen. After you save the unit changes, you will see a "S" on the LCD and then a "2400" number on the screen. The 2400 is the default setting of Baud Rate for RS232 output. You can change the setting to "1200" by pressing HOLD key and change the setting back to "2400" by pressing the AVERAGE key.
- 2 Please remember to save your changes by pressing the RECORD key. A "s" displays on the LCD. Press the HOLD key to confirm and save the changed value. The meter will return to the air velocity measuring mode automatically.

*Plug the earphone jack of the cable VZR232M (optional accessory) into RS232 socket on the meter and connect 9-pin D-sub to the computer's COM1 or COM2. Press ON key to start measurement. The length of the cable VZRS232M is 2 m.

J. AUTO POWER OFF

The unit will turn off automatically after 20 minutes to save the battery. This will be preceded by 3 beeps. Press the ON button and the unit will resume operation.

TROUBLESHOOTING

LOW BATTERY

Indicates low battery. Please change your 9 volt battery.

E6

Indicates the probe is disconnected from the instrument body or not connected properly

PRODUCT SPECIFICATIONS

RANGES

RESOLUTION

ACCURACY

AIRFLOW:

125 - 4900 ft/min.

1

± 2%

0.7 - 25 m/sec

0.01

± 2%

TEMPERATURE:

-10°C to 50°C

0.1

± 0.6°C

+14°F to 122°F

0.1

± 1.0°F

BATTERY TYPE: 9 volt

BATTERY LIFE: 100 hours (under normal usage)

DISPLAY TYPE: LCD

DISPLAY SIZE: 37 mm x 42 mm (1 1/4" x 1 5/8")

MAX READING: 9999

DIMENSIONS: 181 mm x 71 mm x 38 mm (7 1/8" L x 2 3/4" W x 1 3/8"D)

DIAMETER OF FAN: 70 mm (2 7/8")

RS232 OUTPUT: FORMAT: TXXX.XF, VXXXXFTM
TXXX.XC, VXXXXMPS

CFM AND CMS READ-OUT

AUTO POWER OFF: 20 minutes (bypass, see Section G)

DATA HOLD

NOTES:

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's Warranty adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

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RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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