tif

TIF VA500
DIGITAL
HVAC ANALYZER

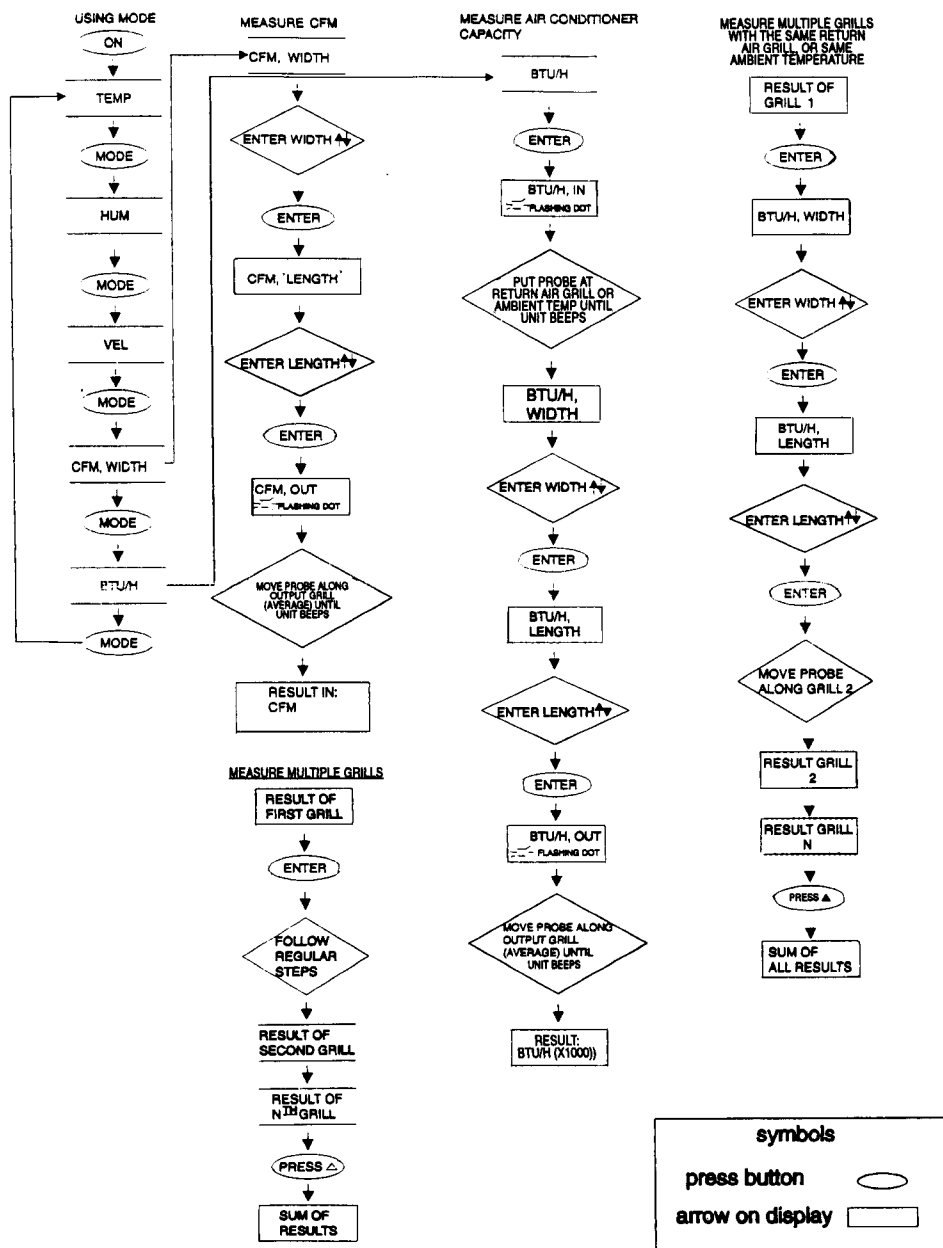Owner's Manual

USING MODE
ON → TEMP → MODE → HUM → MODE → VEL → MODE → CFM, WIDTH → MODE → BTU/H → MODE

MEASURE CFM
CFM, WIDTH → ENTER WIDTH ↑↓ → ENTER → CFM, LENGTH → ENTER LENGTH ↑↓ → ENTER → CFM, OUT (FLASHING DOT) → MOVE PROBE ALONG OUTPUT GRILL (AVERAGE) UNTIL UNIT BEEPS → RESULT IN: CFM

MEASURE MULTIPLE GRILLS
RESULT OF FIRST GRILL → ENTER → FOLLOW REGULAR STEPS → RESULT OF SECOND GRILL → RESULT OF Nth GRILL → PRESS △ → SUM OF RESULTS

MEASURE AIR CONDITIONER CAPACITY
BTU/H → ENTER → BTU/H, IN (FLASHING DOT) → PUT PROBE AT RETURN AIR GRILL OR AMBIENT TEMP UNTIL UNIT BEEPS → BTU/H, WIDTH → ENTER WIDTH ↑↓ → ENTER → BTU/H, LENGTH → ENTER LENGTH ↑↓ → ENTER → BTU/H, OUT (FLASHING DOT) → MOVE PROBE ALONG OUTPUT GRILL (AVERAGE) UNTIL UNIT BEEPS → RESULT: BTU/H (X1000))

MEASURE MULTIPLE GRILLS WITH THE SAME RETURN AIR GRILL, OR SAME AMBIENT TEMPERATURE
RESULT OF GRILL 1 → ENTER → BTU/H, WIDTH → ENTER WIDTH ↑↓ → ENTER → BTU/H, LENGTH → ENTER LENGTH ↑↓ → ENTER → MOVE PROBE ALONG GRILL 2 → RESULT GRILL 2 → RESULT GRILL N → PRESS △ → SUM OF ALL RESULTS

symbols
press button ⬭
arrow on display ▭

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INTRODUCTION

Congratulations! You now own one of the finest HVAC tools available today. The unique TIF VA500 provides you with all the necessary information to measure HVAC performance - including Temperature, Humidity, Velocity, Volume and Power. The VA500 can be used for anything from simple Temperature readings to complex multi-outlet computations of BTUs; from Humidity measurement to system balancing or total outlet output.
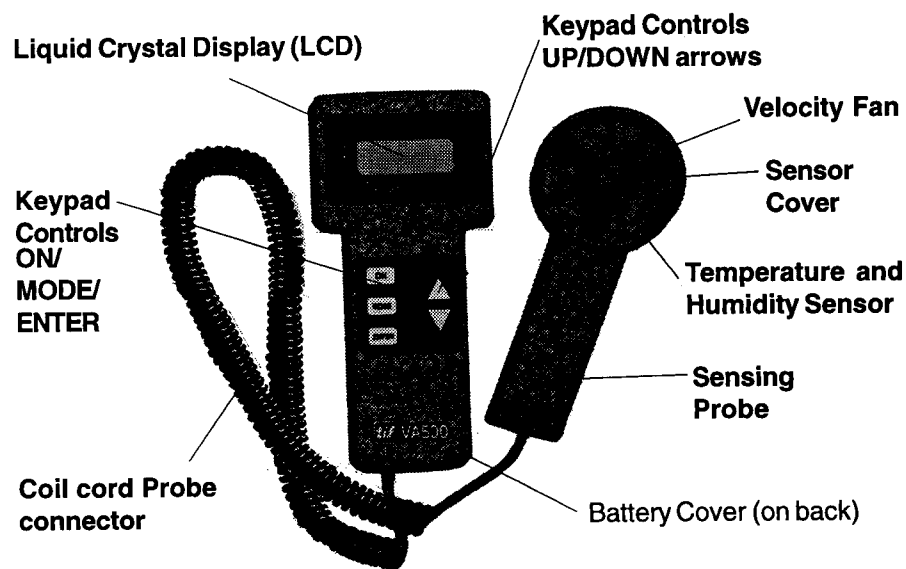
Designed for in field use, the VA500 is lightweight, completely portable and ergonomically designed. Three simple keypad buttons control the unit, providing quick and easy operation. An advanced microprocessor does all the computations needed - and displays the results on a large LCD screen.

For best results with your new VA500, please read this manual carefully. It describes operation, care and additional information to allow you to get the greatest benefit from your new instrument. If you have additional questions after reading the manual, please contact our toll free Customer Service Hotline at 1-800-327-5060.

FEATURES

- Measures Temperature (ºF) and Humidity (%RH)
- Measures Air Velocity (fps) and Volume (cfm)
- Measures Power in BTUs
- Memory allows Cumulative Volume and BTU measurements
- Keypad Controls
- Portable and Lightweight
- Durable sensing mechanisms
- Six foot (1.8m) coil cord probe connection
- Tough ABS housing
- 3/4" (1.9cm) Liquid Crystal Display
- Carrying Case Included
- One Year Warranty

PARTS & CONTROLS

Liquid Crystal Display (LCD)

Keypad Controls UP/DOWN arrows

Velocity Fan

Sensor Cover

Keypad Controls ON/ MODE/ ENTER

Temperature and Humidity Sensor

Sensing Probe

Coil cord Probe connector

Battery Cover (on back)

WARNINGS & PRECAUTIONS

- Always take care to keep the coil cord free of rotating objects such as fan blades or cages.
- Remember to allow unit readings to stabilize in order to avoid false readings.
- Do not place Sensor Cover in direct contact with any surface, especially extremely hot or moist ones.
- Do not expose Sensor to temperatures outside its range.
- Do not expose Fan to velocities above its range.
- Avoid contact with solvents and liquids.
- Avoid extreme mechanical shock or vibrations.

ON BUTTON

1. Press the ON button until the unit beeps and the LCD lights.
2. Press the On button again to switch the unit off.

MEASURING TEMPERATURE

1. The VA500 will switch on in the temperature mode. If already in another mode, press the MODE button to bring the arrow on the LCD in front of "TEMP" (Fig. 1).

2. Place the probe in front of unit outlet (or any other area to be measured) so that the sensor's cover is facing the outlet.

3. Temperature in ºF is displayed.

FIG. 1

MEASURING HUMIDITY LEVEL

1. Press the MODE button to bring the arrow on the LCD in front of "HUM" (Fig. 2).

2. Place the probe in front of unit's outlet (or the area to be measured) so that the sensor's cover is facing the outlet.

3. Relative humidity level in % is displayed.

MEASURING AIR VELOCITY

1. Press the MODE button to bring the arrow on the LCD in front of "VEL" (Fig. 3).

2. Place the probe in front of unit's outlet so that the sensor's cover is facing the outlet.

3. Air velocity in feet per second (fps) is displayed.

FIG. 2

FIG.3

MEASURING AIR VOLUME

1. Press the MODE button to bring the arrow on the LCD in front of "CFM" (another arrow will appear in front of "WIDTH") (Fig. 4).

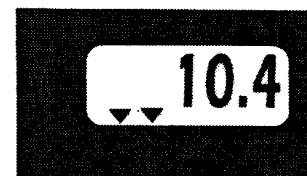2. Measure the width of the outlet and, using the ▲▼ buttons, enter the appropriate measurement in Inches.

FIG.4

3. Press ENTER to insert the width into memory. An arrow will appear in front of "LENGTH". Repeat step 2 above, for the outlet's length (Fig. 5).

4. Place the probe in front of the unit's outlet so that the sensor's cover is facing the outlet. Press ENTER. The VA500 will start measuring air velocity while displaying a flashing dot. Make sure you move the probe along the unit's outlet so as to cover the whole area, aim to get an average reading from all available openings (Fig. 6).
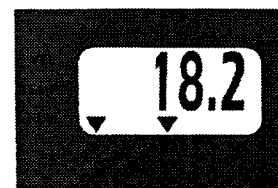

FIG 5.

FIG. 6

5. At the end of one minute, the VA500 will beep signaling that measurement time has ended. The measured Air Volume in CFM is displayed (Fig. 7).

6. If you wish to repeat this measurement or if you wish to measure additional openings, press ENTER and repeat steps 2-5. Measure each opening as described earlier. At the completion of each test the sum of ALL measurement can be displayed by pressing the ▲ button.

FIG. 7   **FIG. 8**

MEASURING POWER

Before you begin, switch to "HUM" mode with the mode button. Put the probe in front of the inlet air and wait until the measurement stabilizes (which allows the "TEMP" measurement to stabilize also). Do not place the probe at the output grill- it will take a long time to return to the normal room temperature and humidity conditions.

1. Press MODE button to bring the arrow on the LCD in front of "BTU" (Fig. 8).

NOTE: It is recommended to test the system at HIGH FAN SPEED.

2. Align the probe in front of unit's inlet and press ENTER. The humidity level plus an arrow above the word "IN" will be displayed. The VA500 will begin measuring the inlet air parameters while displaying a flashing dot (Fig 9). After one minute of measuring, the VA500 will beep and the dot will stop flashing, a signal that the measurement is complete. An arrow will appear above WIDTH (Fig. 10).
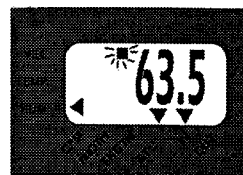
FIG. 9   **FIG. 10**

NOTE: When measuring return air, the sensor should be in the center of the inlet (no need to move it during measurement).

3. Using the ▲▼ buttons, enter the outlet's WIDTH in inches and press ENTER. An arrow will appear in front of LENGTH (Fig. 11).

4. Using the ▲▼ enter the outlet's length in inches. DO NOT PRESS ENTER UNTIL AFTER THE NEXT STEP.

5. Place the probe in front of the unit's outlet (no need to move it) for 2.5 minutes (in order for the sensors to reach their steady state value). Make certain that the sensor's cover is facing the Grill. At the end of 2.5 minutes, press ENTER. An arrow will appear in front of "OUT" and "VEL" and the flashing dot will appear (Fig. 12).
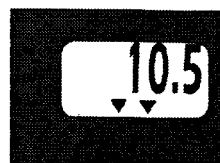
FIG. 11   **FIG. 12**

6. Measure for one minute. Make sure you move the probe along the unit's outlet so as to cover the whole area, to get an average reading from all available openings. At the end of this minute the VA500 will beep and result will be displayed (Fig. 13). Multiply the displayed value by 1000 to get BTUs per Hour (BTU/H).
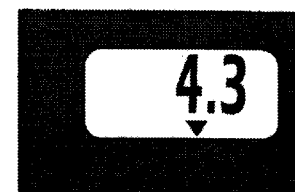
FIG. 13

OPERATING INSTRUCTIONS

TO REPEAT MEASURING OUTLET AIR

7. In case you wish to repeat the measurement, press ENTER and repeat steps 3-6 above (return air and grill size remain in the memory).

MEASURING ADDITIONAL OUTLETS

8. When there are several outputs to measure, press ENTER and repeat steps 3-6 for each one. In this case, you can reduce the time by 1 minute in step 5. Each time a measurement ends, the LCD will display the BTU/H (x 1000) for that specific outlet, if you wish to know the TOTAL BTU/H of all outlets measured up to now, press ▲.

- If you wish to go over the process again, you should wait for about 10 minutes and allow the humidity sensor to return to the room humidity. Then start from step 1.

MAINTENANCE

Your VA500 requires no maintenance apart from battery replacement. From time to time wipe the unit clean with a damp cloth. Do Not use solvents or abrasives. Also, occasionally inspect the coil cord for nicks and/or cuts. Return for replacement if any are found.

Low Battery Indication

The battery requires replacement when the LCD characters begin to flash on and off. To replace the battery, slide the battery compartment cover, located on the back of the top of the unit, upwards to access the battery. Remove and replace with a new and/or tested 9v alkaline battery. Replace cover before operation.

SPECIFICATIONS

Ranges:

Temperature:	23ºF to 149ºF (-5º to 65ºC)
Humidity:	10-95% RH
Velocity Range:	2.6 to 49.9 FPS (0.8 to 15 m/sec)

Accuracy:

Temp:	+/- 2ºF
Humidity:	+/- 3%
Velocity:	+/- 3% of rdg

Response Time:

Temp:	< 5 secs
Humidity:	<10 secs
Velocity:	Instantaneous

Display:	4 digit 3/4" LCD
Coil Cord Length:	72 inches (1.8m)
Operating Temperature:	32ºF to 122ºF (0º to 50ºC)
Power Supply:	One 9V Alkaline battery
Battery Life:	Approx. 8 hours continuous
Weight:	15 ounces (430g)

Dimensions:

Controls -	8"x3.5"x2"(20.3 x 8.9 x 5 cm)
Probe -	6.75"x3"x2"(17.1 x 7.6 x 5 cm)

WARRANTY & REPAIR

Limited Warranty and Repair/Exchange Policy
This instrument has been designed and manufactured to provide unlimited service. Should the unit be inoperative, after performing the recommended maintenance, a no-charge repair or replacement will be made to the original purchaser if the claim is made within one year from the date of purchase. This warranty applies to all repairable instruments that have not been tampered with or damaged through improper use.

This warranty does not cover any materials that wear out during normal operation of the instrument.

Returning Your Unit For Repair
Before returning your instrument for repair please make sure that you have carefully reviewed the **Unit Maintenance** section of this manual to determine if the problem can be easily repaired. Make sure that the **battery** is working properly **BEFORE returning the unit.**

If the unit still fails to work properly send the unit to the repair facility address on the back cover of this manual. Repaired or replaced tools will carry an additional 90 day warranty. For more information please call (800) 327-5060.