

User's Manual



Vane Anemometer

MODEL 451104



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Tech Support Hotlines

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Introduction

Congratulations on your purchase of Extech's Vane Anemometer, Model 451104. The Model 451104, measures the speed (velocity) at which air is flowing. It also measures temperature in both Centigrade and Fahrenheit degrees via a thermistor built into the air velocity sensor housing. The 451104 Anemometer monitors and displays in the following units: Feet per minute (ft/min), meters per second (m/s), kilometers per hour (km/hr), miles per hour (mph), and nautical miles per hour (knots). Vane Anemometers offer low price and easy visual inspection of the rotating sensor's movement which aids in air duct and fume hood applications. Here are a few of the applications for anemometers:

Specifications

General Specifications

Display type and size	LCD display (9999 counts) 1-1/4 x 1-5/8in (37 x 42mm)
Operating Temperature	-10 °C to 50 °C (14 °F to 122 °F).
Operating Humidity	Max. 80% RH.
Meter Power	DC 9V; 100 hours continuous battery life (with 20 min. auto-power OFF)
Weight	680g / 1.5 lb
Size	Instrument: 183 x 76 x 45 mm with cover
Sensor Diameter	3 in. (70mm)
Accessories	9V battery, hard carry case and Instruction manual

Range, Resolution, and Accuracy Specifications

Range	Resolution	Accuracy (%FS)
80 - 5900 ft/min	1	+/-3%
0.4 - 30 m/sec	0.01	
0.9 - 68 mph	0.1	
0.8 - 58 knots		
1.4 - 108 km/hr		
-10 to 50°C	0.1°	+/-0.6°
14 to 122°F		+/-1°

Meter Description

1. Air velocity sensor and Temperature sensor
2. Data Hold key
3. Min/Max Record key
4. On/Off Reset key
5. Units select
6. Set-up key
7. LCD air velocity display
8. LCD temperature display
9. RS232 PC port



Operating Instructions

Power Up

Press the ON/OFF key to power the meter. The LCD will illuminate all display indicators for approximately 2 seconds as it initializes. The meter will display "Vel" in the upper left hand corner of the LCD when it is ready for use.

Selecting Measurement Ranges

To select a measurement range after power-up, press the UNITS key. The meter powers up in ft/min mode. Press the UNITS key until the desired range appears on the LCD [mi/h (mph), knots (km/hr)].

Types of Measurements

1 Standard Measurement Mode: This is the default mode in which the meter powers up. Measurements will appear for air velocity and temperature on the LCD as they are measured. Other measuring modes are discussed next.

2 "Continuous Running Average" Measurement Mode: This Anemometer has the ability to record data for up to 2 hours while displaying the "running" average. Power the unit, place the vane sensor in front of the air source to be measured, press the RECORD key, and the meter will begin displaying the running average. Data is recorded once per second, and the user has up to 2 hours before the meter memory is full.

3 " MIN/MAX/AVG" Measurement Mode

To measure the minimum, maximum, and average readings in a given period of time perform the following steps:

1. Power the unit
2. Place sensor in front of air source
3. Press the RECORD key . The meter begins to take readings.
4. Press the HOLD button
BEFORE moving the sensor away from air source.
5. Press the RECORD key once to display the reading when HOLD was pressed.
6. Press RECORD again to display MIN reading
7. Press RECORD a third time to display the MAX reading.
8. Press RECORD a fourth time to display the AVG reading.
9. To clear all four of these stored readings, remove power from the meter or press and Hold RECORD until the meter beeps twice, then release the key.

AUTO-POWER OFF (SLEEP MODE)

- 1 This meter is equipped with an automatic shut-off function. After 20 minutes of non-use, the meter automatically shuts down after giving three warning beeps. Press the ON key while the warning beeps are sounding to provide another 20 minute window. To avoid wasting batteries by leaving the meter unattended and powered up, this feature goes a long way in prolonging not only battery life, but meter life as well. However, In the event that you desire to defeat the Auto Power Off mode, follow these steps:

2 Disable Auto-Power OFF Function

1. Remove power from meter.
2. Press and hold the "ON" and "Hold" keys simultaneously.
3. Release the "ON" key while continuing to press the "Hold" key.
4. An "n" will appear on the LCD indicating "non-Sleep Mode".
5. Release the "Hold" key
6. The unit's Auto-Power OFF feature has been defeated meaning that it will not power down until the user powers down deliberately by pressing OFF button.
7. Auto Power OFF will be re-activated the next time the meter is powered.

CHANGING THE DEFAULT SETTINGS

It is possible to change the default air velocity and temperature display units and RS232 baud rate. The default air velocity units are ft/min and the default temperature units are degrees F. To change the default units to m/sec for air velocity and degrees C for temperature, perform the following steps:

1. From a power down condition, press and hold the "SET-UP" key.
2. Press and release the "ON" key and at the second beep release the "SET-UP" key .
3. The LCD will indicate wind speed units (ie. "ft/min") in the upper right hand corner and temperature units (ie. "°F") in the right lower corner.
4. Press the "Hold" key to set the air velocity units to m/sec (and temp to deg. C) or the "SET-UP" key to set the air velocity units to ft/min (and temp. to deg. F).
5. Press the "RECORD" key and an "S" will appear on the meter's LCD.
6. Press the "HOLD" key to save the setting.
7. "1200" or "2400" will appear on the LCD. This is the RS232 baud rate.
8. Press the "HOLD" key to set 1200 or the "SET-UP" key to set 2400.
9. Press the "RECORD" key and an "S" will appear on the meter's LCD.
10. Press the "HOLD" key to save the setting and return to the normal operating mode.

RS232 OPERATION

The meter will communicate to a PC using Window Hyperterminal.

- 1 Connect the RS232 cable from the meter jack to the PC COM port
- 2 Set the COM port settings to: Baud rate:2400, Data bits:8, Parity: none, Stop bits: 1, Flow control: None or Xon/Xoff
- 3 Execute Hyperterminal.
- 4 Data format:

T026.1C:V00.00MS or T078.2F:V00:00FTM

Where TXXX.X is the temperature in C or F and VXX:XX is the air velocity in M/sec or Ft/min.