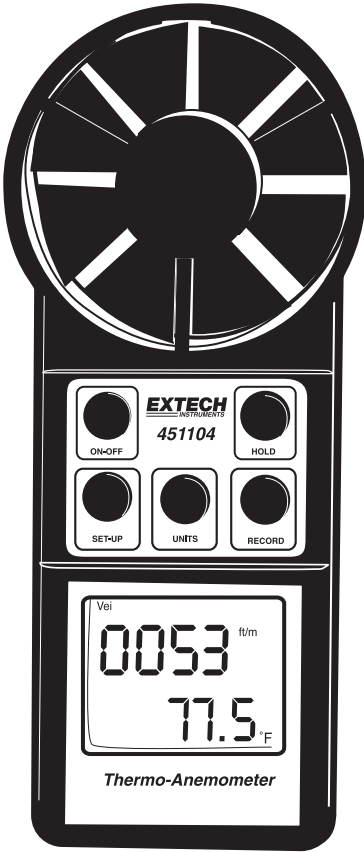


User's Guide



Digital Vane Thermo-Anemometer

Model 451104



Warranty

EXTECH INSTRUMENTS CORPORATION warrants this instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 ext. 210 for authorization or visit our website at www.extech.com for contact information. A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

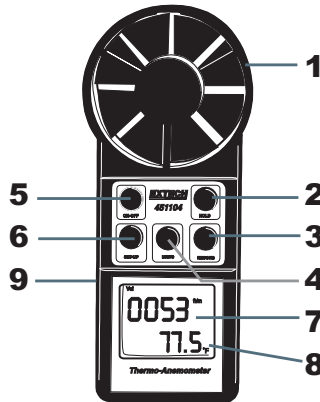
Introduction

Congratulations on your purchase of the Extech 451104 Vane Thermo-Anemometer. This device measures air velocity and temperature, displaying both simultaneously. The measurement vane is built into the meter for ease of use.

This meter stores the highest (MAX), lowest (MIN), and average (AVG) readings for easy recall. The built-in RS-232 PC Interface jack can be used to capture readings on a PC as they are taken using the optional Model 407752 interface kit. This meter is shipped fully tested and calibrated and, with proper use, will provide years of reliable service

Meter Description

1. Air velocity sensor with built-in Temperature sensor
2. Data Hold button
3. Min/Max/Avg Record button
4. Unit of measure button
5. ON-OFF power button
6. Set-up key (used for programming as described in this manual)
7. LCD air velocity display
8. LCD temperature display
9. RS-232 PC port



Note that the battery compartment is located on the back of the meter

Operation

Meter Power

1. This meter is powered by one 9V battery. To replace or install the battery, refer to the section 'Battery Replacement'.
2. Press the ON-OFF button to turn the meter on. If the meter does not switch on, check the battery.
3. When the meter switches on it runs through a 2-second self-test. When the self-test is finished, the VEL display icon will appear in the upper left hand corner of the LCD. VEL is the Air Velocity indicator. When it appears, the meter is ready for use.

Air Velocity Measurements

1. Turn the meter on and hold the measurement vane in the path of the air stream.
2. Read the Air Velocity and Temperature measurements on the LCD display. Air Velocity readings are displayed in the center of the LCD while the Temperature reading is shown on the bottom right of the LCD.

Data Hold

In cases where it is difficult to see the LCD display while taking a measurement, the meter can freeze the measurement on the LCD for later viewing.

1. At any time during a measurement, press the HOLD button to freeze the reading. The 'Hold' display icon will switch on to alert the user that the meter is in the HOLD mode.
2. To exit this mode, press the HOLD button again (the 'Hold' display icon will switch off).

Selecting the units of measure

The meter can be used in either the **feet per minute / °F mode** or the **meters per second / °C mode**. In the ft/m mode, the available air velocity units are ft/min (feet per minute), mil/h (miles per hour) and knots (nautical miles per hour). Use the UNIT button to change the unit of measure. In the m/s mode, the available air velocity units are m/s (meters per second), km/h (kilometers per hour) and knots (nautical miles per hour). To change from one mode to the other, follow these steps:

1. With the meter off, press and hold the SETUP button.
2. Press and release the ON button and at the second beep release the SETUP button.
3. The LCD will indicate Air Velocity units and temperature units.
4. Press the HOLD button to set the units to meters per second (m/s) and °C. Press the SETUP button to set the units to feet per minute (ft/m) and °F).
5. Press the RECORD button and an 'S' will appear.
6. Press the HOLD button to save the setting.
7. '1200' or '2400' will appear on the LCD. This is the RS-232 PC Interface baud rate.
8. Press the HOLD button to set the baud rate to 1200 or the SETUP button to select a 2400 baud rate.
9. Press the RECORD button and an 'S' will appear.
10. Press the HOLD button to save the setting and return to the normal operating mode.

Minimum, Maximum, and Average Record / Recall

This meter can be placed in the RECORD mode and keep track of the highest (MAX), lowest (MIN), and average (AVG) readings. The MIN, MAX, and AVG readings can be viewed at any time at the press of a button. To use these features, follow these steps:

1. Press the RECORD mode until a beep is heard
2. The REC display indicator will appear. The meter is now keeping track of the highest, lowest, and average readings
3. Now use the RECORD button to move between the four displays listed below:
 - MAX mode: The MAX display mode shows the highest reading encountered since the meter was placed in the RECORD mode. In this mode the MAX and REC indicators will be on the LCD.
 - MIN mode: The MIN display mode shows the lowest reading encountered since the meter was placed in the RECORD mode. In this mode the MIN and REC indicators will be on the LCD.
 - AVG MODE: The AVG display mode shows a running average of the readings. In this mode the AVG and REC indicators will be on the LCD.
 - REC only mode: In this mode the meter is still tracking the MIN, MAX, and AVG readings but only displaying the current readings. In this mode, only the REC display icon will be on.
4. To exit the RECORD mode press and hold the RECORD button until two beeps are heard. When the meter has successfully exited the RECORD mode, the MIN, MAX, AVG, and REC indicators will be off.
5. Note that the RECORD mode time limit is two (2) hours.

Automatic Power OFF

The meter has an Auto-Power OFF feature that preserves battery life by automatically turning the meter off after 20 minutes. Warning tones are sounded immediately before the meter switches off. When the meter is in the RECORD mode (explained in the MIN-MAX-AVG RECORD/RECALL section) the Auto Power OFF feature is disabled. To disable the Auto-Power OFF feature without having to access the RECORD/RECALL mode, follow the procedure below:

1. Turn the meter OFF
2. Press and hold the ON-OFF and HOLD keys simultaneously
3. Release the ON key while continuing to press the HOLD key
4. A letter 'n' will appear on the LCD
5. Release the HOLD key
6. The meter's Auto-Power OFF feature has now been disabled. Keep in mind that the next time the meter is used, the Auto-Power OFF feature will be enabled.

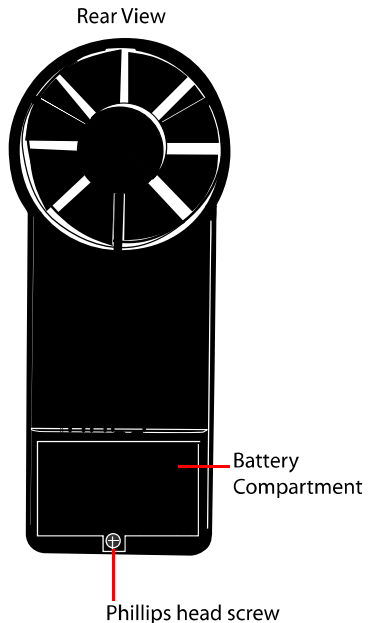
PC Interface

The meter is equipped with an RS-232c PC interface jack (3.5mm phono) for connection to a PC. The cable to connect the meter to the PC is included in the optional 407752 data acquisition kit. The kit includes Windows™ software that allows the user to store readings in a text file and display real-time measurements in a series of selectable formats. For more information or specific operating instructions, refer to the User Guide included with the 407752 kit or contact Extech Instruments.

Battery Replacement

The meter is powered by one 9V Battery. If the display does not switch on when the ON-OFF button is pressed, replace the battery using the procedure below.

1. Remove the Phillips head screw at the rear of the meter (refer to diagram)
2. Open the battery compartment by removing the compartment cover
3. Unsnap the old battery from the red and black wire connectors
4. Snap in the new battery and carefully dress the red and black wires so that they do not crimp or rest in the hinges of the compartment cover
5. Close the compartment cover
6. Tighten the Phillips head screw to secure the compartment



Specifications

General Specifications

Display	Dual LCD display: 0 to 9999 digits for Air Velocity and 0 to 1999 digits for Temperature readings
Operating Temperature	14 °F to 122 °F (-10 °C to 50 °C)
Operating Humidity	80% Relative Humidity (maximum)
Meter Power	9V battery
Battery life	100 hours of continuous use
Auto Power OFF	Meter turns off after 20 minutes automatically
Weight	1.5 lb (680g)
Meter Dimensions	7.20 x 2.99 x 1.77" (183 x 76 x 45 mm)
Sensor Vane Diameter	2.9" (70mm)
Accessories	9V battery and hard carry case

Range Specifications

Range	Resolution	Accuracy (% Full Scale)
80 - 5900 ft/min	1	± 3%
0.40 – 30.00 m/sec	0.01	
0.9 – 68.0 mph	0.1	
0.8 – 58.0 knots		
1.4 – 108.0 km/hr		
-10.0 to 50.0 °C	0.1°	± 1C°
14.0 to 122.0 °F		± 2F°

Calibration and Repair Services

Extech offers repair and calibration services for the products we sell. Extech also provides NIST certification for most products. Call the Customer Service Department for information on calibration services available for this product. Extech recommends that annual calibrations be performed to verify meter performance and accuracy.



Support line (781) 890-7440

Technical support: Extension 200; E-mail: support@extech.com

Repair & Returns: Extension 210; E-mail: repair@extech.com

Product specifications subject to change without notice

For the latest version of this User's Guide, Software updates, and other up-to-the-minute product information, visit our website: www.extech.com

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