User's Manual

EXTECH INSTRUMENTS

Model 407123

Hot Wire Thermo-Anemometer

Introduction

Congratulations on your purchase of Extech's Hot Wire Anemometer. This meter is equipped with a telescoping antenna, indicates air-flow in 5 units, measures temperature, and provides data recording. With proper care this meter will provide years of safe, reliable service.

Specifications

General Specifications

Circuit	Custom one-chip LSI microprocessor circuit
Display	Dual function 0.5" (13 mm) 1999 count LCD display
Measurement	m/s (meters per second), km/h (kilometers per hour), ft/min (feet/per minute), knots (nautical miles per hour), MPH (miles per hour), Temperature: °C, °F
Data hold	Freezes reading on display
Sensor Structure	Air velocity sensor: Glass bead thermistor Temperature sensor: Precision thermistor
Memory Recall	Records Max, Min with RECALL
Data Output	RS 232 PC serial interface
Operating Temp.	32 to 122°F (0 to 50 °C)
Operating Humidity	Max. 80% RH
Power Supply	six 1.5V AAA (UM-4) alkaline or heavy duty type
Power Consumption	Approx. DC 30 mA
Weight	0.78 lb / 355 g / (including batteries & probe)
Dimensions	Main instrument: 7.1 x 2.8 x1.3" (180 x 72 x 32 mm); Probe: 12 mm diameter x 940mm (maximum length)

Range Specifications

Units	Range	Resolution	Accuracy
m/s	0.2 to 20.0 m/s	0.1 m/s	± (3% + 1d) rdg or ±(1% + 1d) FS whichever is greater
km/h	0.7 to 72.0 km/h	0.1 km/h	
ft/min	40 to 3940 ft/min	1 ft/min	
MPH	0.5 to 44.7 MPH	0.1 MPH	
knots	0.4 to 38.8 knots	0.1 knots	
Temp.	0 to 50°C / 32 to 122 °F	0.1 °C / 0.1 °F	0.8 °C / 1.5 °F

Note: m/s = meters per sec, km/h = kilometers per hour, ft/min = feet per min, Knots = nautical miles per hour, MPH = miles per hour

Warranty

EXTECH INSTRUMENTS CORPORATION warrants this instrument to be free of defects in parts and workmanship for three years 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. 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.

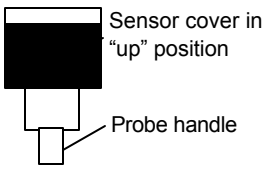
☎
Tech Support Hotlines
781-890-7440 ext. 200
extech@extech.com

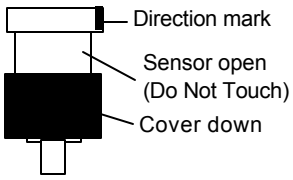
Meter Description

1. LCD Display
2. Keypad
3. Protective Holster
4. Battery compartment (rear)
5. RS-232 output jack
6. Probe input
7. Telescoping probe

Meter Operation

1. Plug the probe into the probe input socket at the top of the meter.
2. Press the Power Off/On key to turn the instrument power ON.
3. Select the temperature units by pressing the °C/°F key. The display will indicate "°C" or "°F" as selected.
4. Select the air velocity units by pressing the UNIT key, The display will indicate "m/s", "km/h", "ft/min", "knot", or "mile/h" as selected.
5. Zero Setting:
    a. On the sensor head, slide the cover to the UP position to isolate the sensing element from the environment.
    b. Press the ZERO button
6. Measurements:
    a. Slide the sensor cover to the DOWN position to allow the air velocity sensor to contact the air flow.
    b. Extend the telescoping probe to the desired length.
    c. Place the sensor head into the air stream with the mark facing towards the direction of the flow.





Data Hold

1. Press the DATA HOLD key to freeze the displayed reading (the LCD will display the DH indicator). Press the HOLD key again to return to normal operation.

Data Record (Max., Min. reading):

1. When selected, the DATA RECORD function records and stores the max and min readings.
2. To initiate the DATA RECORD function:
   a) Press the RECORD key. The REC indicator will appear on the display.
   b) Press the RECALL key to enter the MAX mode. The MAX indicator along with the maximum values will appear on the LCD display.
   c) Press the RECALL key again and the MIN indicator, along with the minimum values, will appear on the LCD display.
   d) To disable the Data Record function, press the RECORD key again. The display indicators REC, MAX, and MIN will disappear.

Battery Replacement

The low battery indication appears as a LBT on the left corner of the display. When LBT appears, replace the battery as soon as possible. Reliable readings can be obtained for several hours after the first appearance of the low battery indication. To replace the battery:

a) Remove the meter's protective rubber holster by pulling it over the bottom of the meter.

b) Pry off the rear battery compartment cover with a small coin or screwdriver and remove the batteries.

b) Replace the six AAA batteries and reinstall the cover and holster.

c) Make sure the battery cover is secured after changing the battery.

RS232 PC Interface

The meter is equipped with an RS232 serial data port. This interface was designed to operate with the Extech Data Acquisition Software (part no. 407000) and enables the user to capture, store and display readings on a PC. For more information, contact Extech or refer to the 407000 user's manual.

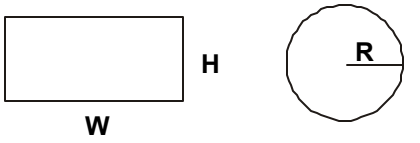
Calibration and Repair Services

Extech offers complete repair and calibration services for all of the products we sell. For periodic calibration, NIST certification or repair of any Extech product, call customer service for details on services available. Extech recommends that calibration be performed on an annual basis to insure calibration integrity.

Useful Equations and Conversions

Area equations

The volume of air flowing through a duct or vent can be determined by taking the area of the duct in square units (i.e. square feet) and multiplying this value by the measured linear velocity (i.e., feet per minute). This gives: ft/min x ft^2 = ft^3/min (CFM)



A = W x H

A = pi x R^2

Cubic equations

CFM (ft^3/min) = Air Velocity (ft/min) x Area (ft^2)
CMM (m^3/min) = Air Velocity (m/sec) x Area (m^2) x 60

Units Conversion Table

	m/s	ft/min	knots	km/hr	MPH
1 m/s	1	196.87	1.944	3.6	2.24
1 ft/min	0.00508	1	0.00987	0.01829	0.01138
1 knot	0.5144	101.27	1	1.8519	1.1523
1 km/hr	0.2778	54.69	0.54	1	0.6222
1 MPHs	0.4464	87.89	0.8679	1.6071	1