MAJOR TECH

INSTRUCTION MANUAL

MT945

HOT WIRE THERMO ANEMOMETER

Contents

The MT945 Hot Wire Thermo Anemometer is a microprocessor-based device designed to simultaneously measure low air velocity and air temperature. It utilizes a combination of a hot wire and a standard thermistor to provide quick and accurate measurements. The slim telescopic anemometer probe is well-suited for use in ducts and ventilation systems. Monitoring air velocity and temperature readings together has never been more convenient, thanks to the large backlit LCD display. Additionally, the MT945 can record maximum and minimum readings, allowing you to recall and hold data. Uploading and storing the measured values into your computer is effortlessly accomplished through the built-in USB interface.

Please read the following instructions carefully and always keep this manual within easy reach.

1. FEATURES

- Thermal anemometer for very low air velocity measurement.
- Slim probe, ideal for grilles & diffusers.
- Combination of hot wire and standard thermistor, deliver rapid and precise measurements even at low air velocity.
- Records Maximum and Minimum readings with recall.
- Microprocessor circuit assures maximum possible accuracy, provides special functions and features.
- Large LCD with dual function meter's display, read the air velocity & temp at the same time.
- Records Maximum and Minimum readings with recall.
- Air flow measurement: m/s, km/h, ft/min, MPH, Knots.
- Build in temperature °C, °F measurement.
- Thermistor sensor for Temp. measurement, fast response time.
- Used the durable, long-lasting components, including a strong, light weight ABS-plastic housing case.
- Applications: Environmental testing, Air conveyors, Flow hoods, Clean rooms, Air velocity, Air balancing, Fans/motors/blowers, Furnace velocity, Refrigerated Case, Paint spray booths.

2. BUTTONS

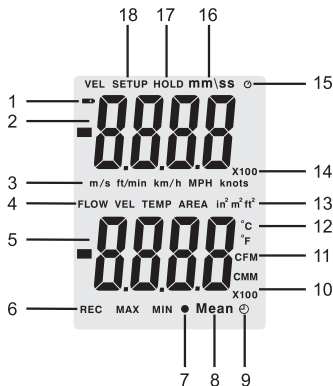- Press " ⏻ " .The thermal sensor is heated up (5s). Measurement view is opened: The current reading is displayed, or "----"lights up if no reading is available. Press "⏻" again, turn off the instrument.
- Press **"Man/Mix"** to freeze or unfreeze the displayed readings or air velocity Zero Adjust.
- Press **"Enter"** to enter a Setup option. Press **"Enter"** again to store the displayed setting in memory.

- Press "Setup ☀" to turn on the backlight. Press it again to turn off the backlight. Press "Setup ☀" button for 3 seconds to start or exit Setup. (See "Changing Setup Options.")
- Press **"Unit ▲"** to scroll to the Setup option you want to change. Press **"Unit ▼"** to increase the displayed setting.
- Press **"Unit ▲"** to start recording and press again to stop recording. If enter a Setup option. Scroll to the Setup option you want to change. Press **"Unit ▼"** to decrease the Displayed setting.
- Performing a multi-point mean calculation or performing a mean calculation in time.
- Press **"Man/Mix"** to step through the maximum and minimum readings. To exit the MAN/MIX mode, press the **"Man/Mix"** button for 2 seconds to return to normal operation.
- To change between displaying the temperature, flow velocity, and calculated Volumetric flow rate: Press **"Flow/Temp"**.

3. DISPLAY ELEMENTS

1 - Low Power.
2 - Primary Display: air velocity, recording data or time.
3 - Air velocity units.
4 - Secondly display data.
5 - Secondly display: air flow, temperature, or air velocity data.
6 - Record MAX, MIN display.
7 - Sign of multi-point mean calculation.
8 - Mean calculation
9 - Sign of mean calculation in time.
10 - The multiple of Secondly display data.
11 - Flow units.
12 - Temperature units.
13 - Flow area units.
14 - The multiple of Primary display data.

15 - The Sign of Auto Power Off.
16 - The sign of time.
17 - Freezing the data.
18 - Entering or Exiting Setup.

4. CHANGING SETUP OPTIONS
Use Setup to change area unit, flow area, sleep mode settings. The thermometer stores the settings in its memory.

4.1. Setup Options

Option	Main Menu	Settings
Choose area unit	Unit	set area unit
Change the flow area	area	set area of measuring air flow
Auto Power Off mode	SLP	auto off or on

4.2. Entering or Exiting Setup
When the thermometer is in Setup mode, the display shows SETUP.
Press "Setup 🔆" button for 3 seconds start or exit Setup.

4.3. Changing a Setup Option
• Press **"Unit ▲"** or **"Unit▼ "** to scroll to the setup option you want to change.
• Press **"Enter"** to indicate that you want to change this setting.
• Press **"Unit ▲"** or **"Unit▼ "** until the setting you want to use appears on the display.
• Press **"Enter"** to store the new setting in memory.
Notes: Setup is disabled in MIN MAX, Mean mode.

4.4. Area unit Setting
• When the thermometer is in Setup mode, press **"Unit ▲"** or **"Unit▼ "** to scroll to the area unit setup option (refer Fig.2).
• Press **"Enter"** button., The string "AREA" and area unit shows in the screen.
• Press **"Unit▲ "** or **"Unit ▼"** to scroll to unit that you want to change((refer Fig.3).
• Press **"Enter"** to store the new area in memory.

Fig 1

Fig 2

4.5. Area Setting

Changing the number digits of area and change the number value of area. Press **"Unit ▲"** or **"Unit ▼"** to scroll to the area value setup option when the thermometer is in the setup mode. Press **"Enter"** button, the area number flashes. Press **"Unit ▲"** or **"Unit ▼"** to scroll to digit that you want to change (refer Fig.3).

Press **"Enter"**, the screen indicate that area number with a flashing digit. Press **"Unit "** or **"Unit "** to change the flashing digit from 0 to 9. Press **"Mean"** to change the station of flashing digit and press **"Unit ▼"** or **"Unit ▲"** to change the number, the adjust order is from right to left. Press "Enter" to store the new area in memory.

4.6. Auto Power Off Mode

The thermometer enters sleep mode (default). That is to say, the meter will automatically shut off after 20 minutes if no button press occurs for 20 minutes.

When the thermometer is in Setup mode, the display shows SETUP. Press **"Unit ▲"** or **"Unit ▼"** to scroll to the "SLP" page. Press "Enter" to indicate "On"

or "OFF". Press **"Unit ▲"** or **"Unit ▼"** until the setting you want to use appears on the display. Press **"Enter"** to store the new setting in memory. On (sleep mode on) or OFF (sleep mode off).


Fig 3

4.7. Measuring Procedure
1. Connect the "Probe's Plug" to the "Probe Input Socket".
2. Power on the meter by push the "Power On/Off Button".
3. Select the desire air velocity units and temperature units.
4. Zero setting:
    a.On the "Sensing Head", slide the sensor cover to the up position to let the air Velocity sensor isolated from the environment.
    b.Push the "Zero Button" to let reading value of air velocity shows zero value.

"Sensor cover" slide to the up position

Probe Handle

Fig 1
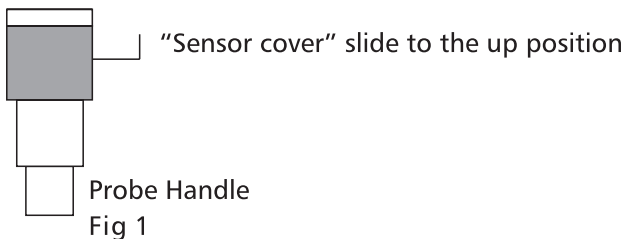
5. Slide the sensor cover to the down position which will allow the air velocity sensor to come into contact with the air, refer Fig.2. Extend the telescope probe to the marked length, refer Fig.4.

Air velocity sensor

Fig 2

Fig 3
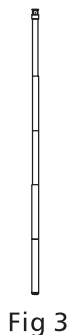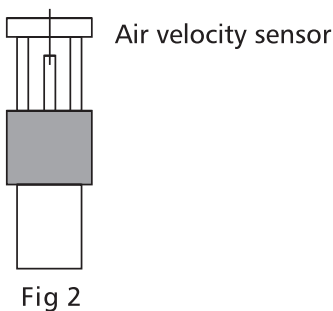
4.8. Direction of the sensor head:
There is a mark on the top of the "Sensor Head", when making the measurement, this mark should be against the measured wind - refer to Fig. 4 and Fig. 5. When the sensor head face is against the measurement air, then sensor head face against the measured air, then the upper display will show the air velocity value. The lower display will show the temperature value.
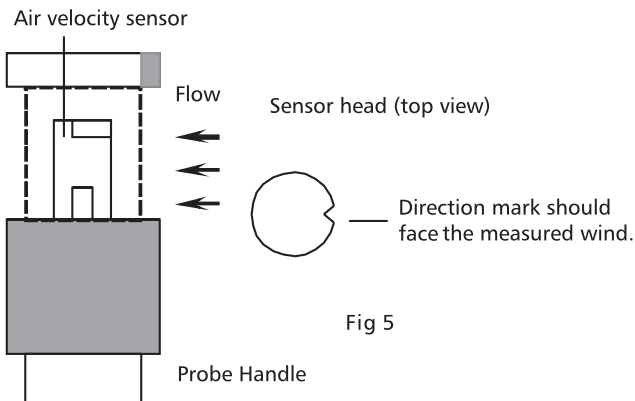

Fig 5

Fig 4

5. PERFORMING A MULTI-POINT MEAN CALCULATION

- Press **"Mean"**.
  Mean is lit. The number of readings recorded is displayed in the upper line, while the current reading is displayed in the lower line.
- To change between displaying the temperature, flow velocity and calculated. Volumetric flow rate: Press **"Flow/Temp"**.
- If we want to change the units of the current reading, press **"Unit▼"**.
- To include readings (in the desired quantity): Press **"Enter"** (several times).
- To end measurement and calculate the mean value: Press **"Mean"**. Mean flashes. The calculated spot mean value is displayed.
- To return to measurement view: Press **"Mean"**.

9

6. PERFORMING A MEAN CALCULATION IN TIME

• Press **"Mean"** for 2 seconds. Mean ⊕ is lit. The elapsed measuring time (mm:ss) is displayed in the upper line while the current reading is displayed in the lower line.
• To change between displaying the temperature, flow velocity and calculated volumetric flow rate: Press **"Flow/Temp"**.
• If you want to change the units of the current reading, press **"Unit▼"**.
• To interrupt/continue measurement: Press each time.
• To end measurement and calculate the mean value: Press **"Mean"**. Mean ⊕ flashes. The calculated mean value in time is displayed.
• To return to measurement view: Press **"Mean"**.

7. HOLDING THE DISPLAYED READINGS

• Press **"Hold/Zero"** to freeze the readings on the display. The display shows HOLD.
• To change between displaying the temperature, flow velocity and calculated volumetric flow rate: Press **"Flow/Temp"**.
• Press **"Hold/Zero"** again to turn off the HOLD function.

8. VIEWING THE MIN, MAX READINGS

• Press **"Min/Max"** to step through the maximum (MAX), minimum (MIN), or the average (AVG) readings. The elapsed time since entering MAX/ MIN mode, or the time at which the minimum or maximum occurred appears on the display.
• Press **"Min/Max"** button for 2 seconds to exit MAX/MIN mode.

9. REPLACING THE BATTERIES

• Turn off the thermometer if necessary.
• Loosen the screw and remove the battery door.
• Replace 9V batteries.
• Replace the battery door and tighten the screw.

10. SPECIFICATIONS
10.1. General Specifications

Function	Range
Display	46.7mmx60 mm larger LCD display
	Dual function meter's display
Measurement	m/s (meters per second)
	km/h (kilometers per hour)
	ft/min (feet per minute)
	MPH (miles per hour)
	knots (nautical miles per hour)
	Temp. ---°C ' °F
	Data hold
Memory	Maximum and Minimum with recall
Sampling	Approx.0.8 sec
Operating Temperature	0°C to 50°C (32°F to 122°F)
Operating Humidity	Less than 80% RH
Power Supply	9V battery
Power Current	Approx. DC 60~90mA
Weight	280g
Dimension	210mmx75mmx50mm
Accessories included	Hot wire sensor & 9V battery

10.2. Electrical Specifications

Function	Range		
Air Velocity			
Measurement	Range	Resolution	Accuracy
m/s	0.1 ~25.0m/s	0.01m/s	
km/h	0.3~90.0km/h	0.1 km/h	±(5%+ 1 d)
ft/min	20~4925/min	1ft/min	reading
MPH	0.2~55.8 MPH	0.1 MPH	
knots	0.2~48.Sknots	0.1 knots	

Notes: m/s-meters per second km/h-kilometers per hour, ft/min-feet per minute MPH-miles per hour, knots-nautical miles per hour

10.3. Temperature Specifications

Function	Range
Measuring Range	0°C to 50°C (32°F to 122°F)
Resolution	0.1 °/0.1°F
Accuracy	± 1°C/1.8°F

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