

The Specification of 5 In 1 Multifunction Environment Meter User Manual



Please read this manual before switching the unit on.
Important safety information inside.

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1-The Specification of 5 In 1 Multifunction Environment Meter

- The 5 in 1 digital Multifunction Environment Meter has been designed to combine the functions of Sound Level Meter, Light Meter, Humidity Meter and Temperature Meter and CFM/CMM Thermo-Anemometer. It is an ideal Multifunction Environment Meter Instrument with scores of practical applications for professional and home use.
- The Sound level function can be used to measure noise in factories, schools, offices, home, etc, checking acoustics of studios, auditoriums and hi-fi installations.
- The Light function is used to measure luminance in the field. It is fully cosine corrected for the angular incidence of light. The light sensitive component used in the meter is a very stable, long, life silicon diode.
- The Humidity/Temperature uses a humidity/semiconductor sensor and K type thermocouple.
- CFM/CMM Thermo-Anemometer is suitable for use in a wide variety of applications, including plant maintenance operations, environmental analysis, fume hood testing, and HVAC system assessments.

2-Features

- 1.Larger LCD display with backlight.MAX MIN and AVG measurements.
- 2.Display Sound, Light, Type K Temperature, Humidity & Temperature plus Air Velocity & Air Flow simultaneously.
- 3.Electronic Offset function allows compensation of thermocouple errors to maximize overall accuracy.
- 4.The device measures air velocity, it features 5 selectable units of velocity measure: m/s, ft/min, km/h, MPH, knots. And it features 2 selectable units of flow measure: CFM, CMM.
- 5.Easy to set Area dimension (up to 6 point) for air flow measurement.
- 6.USB interface, USB to UART Bridge Controller..
- 7.Low battery indication, and Auto Power Off mode (Sleep mode) increases.

3-Specifications

3-1. General Specifications

Operating Conditions	0 to 50 °C
Storage Conditions	-10 to 60 °C
Power Supply	1×9V Battery
Low Battery Indicator	Yes
Accessories	9V Battery and K Type temperature, humidity probe, light probe, sound probe, anemo probe and gift box with carrying case.

3-2.Manometer specification

Function	Range	Resolution	Accuracy
Sound Level	30dB-130dB	0.1	±3.5dB at 94dB Sound level 1KHz sine wave
Light	20000Lux	0.1,1,10	±(5+10d)
Humidity and Temperature	5%-98%RH	0.1	±3.5%RH
	10~30°C (50~86°F)	0.1	±1°C / ±1.8°F
	-30~9.99°C (-22~50°F) 31~60°C (88~140°F)	0.1,1	±2°C / ±3.6°F
	-99.9~99.9°C (-148~212°F)	0.1,1	±[1.5%rdg+1°C(1.8°F)]
K type Temperature	-100~-200°C (-148~-328°F) 100~1372°C (212~2502°F)		±[1.5%rdg+2°C(3.6°F)]
Air Velocity	(0.40~30)m/s	0.01	±3%±0.20m/s
	(196~5900)ft/min	1	±3%±40 ft/min
	(3.6~108.0)km/h	0.1	±3%±0.8 km/h
	(2.2~67.0)MPH	0.1	±3%±0.4 MPH
	(1.9~58.0)Knots	0.1	±3%±0.4 Knots
Air Flow	(0~999900)CFM	0.001~100	accuracy is function of velocity and area
	(0~999900)CMM	0.001~100	

4-Button

1. Press  to turn the meter on or off.
2. Press  to step through the maximum, minimum, and average readings. To exit the MAN/MIX/AVG mode, press  button for 2 seconds to return to normal operation.
3. Press  to toggle showing the Temperature (Humidity Probe), and K Type Temperature in the primary.
4. Press  to freeze or unfreeze the displayed readings. The meter is in area setup option, press  to change the station of flashing digit.
5. Press  to toggle showing the Light, Sound, Air Flow and Humidity in the secondary display.
6. Press  button to turn on the backlight. Press it again to turn off the backlight. Press  button for 2 seconds to start or exit Setup. (See "Changing Setup Options.")
7. When secondary readings shows the Sound, press  to switch between FAST and SLOW mode. When secondary readings shows the Light, press  for 2 seconds to zero the Light. When the meter is in Setup mode, press  to enter a setup option and press  again to store the displayed setting in memory.
8. Press  to change the units of primary display. In Setup mode, press  to scroll to the Setup option you want to change or press  to increase the displayed setting.
9. Press  to change the units of secondary display. In Setup mode, In Setup mode, press  to scroll to the Setup option you want to change or press  to decrease the displayed setting.

5-Display Elements

1.Temperature (Humidity Probe), K Type Temperature and Air Velocity Modes Are Active

In Primary Display

2.Area Indication

3.Light, Sound, Air Flow and Humidity Modes Are Active In Secondary Display

4.The Secondary Display

5.Sound of Fast or Slow Mode

6.Data Hold Indicator

7.REC, MAX, MIN and AVG Indicators.

8.Units of Sound (dBA / dBC) in Secondary Display

9.Units of Light (LUX / FC) in Secondary Display

10.Type K Temperature Offset Option, OFFSET Display.

11.Entering or Exiting Setup Mode

12.Multiplier($\times 10$ or $\times 100$)

13.Units of Flow (CFM/CMM) in Secondary Display

14.Units of Humidity in Secondary Display

15.The Indication of Meter Communicating To PC

16.Units of Area

17.Units of velocity

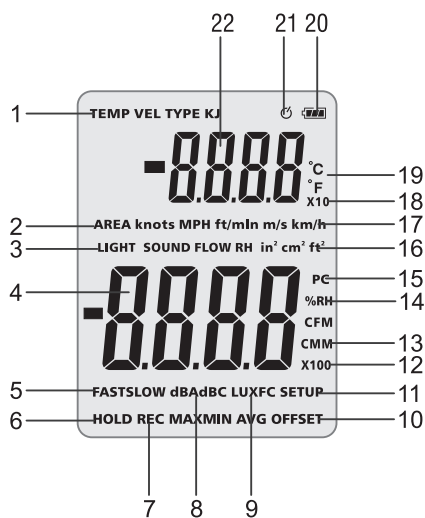
18.Multiplier($\times 10$)

19.Units of Temperature

20.Low Battery Indicator

21.Auto Power off Mode Indicators

22.The Primary Display



6-Changing Setup Options

Use Setup to choose Temperature, Light, Sound, Air Velocity, Air Flow, Area, TYPE K offset and sleep mode setting. The meter stores the settings in its memory.

6-1-Setup Options

Option	Menu item	Settings
Temperature Unit	TEMP Unit	Set Temperature Unit ($^{\circ}\text{C}$ or $^{\circ}\text{F}$)
Light Unit	LIGHT Unit	Set Light Unit (LUX or FC)
Sound Unit	SOUND Unit	Set Sound Unit (dBA or dBC)
Offset	TYPE K OFFSET	TYPE K Temperature offset
Units of velocity	VEL Unit	Set Velocity Unit(five unit)
Units of Flow	FLOW Unit	Set Flow Unit (CFM or CMM)
Units of Area	AREA Unit	Set Area Of Unit (in^2 or cm^2 or ft^2)
Size of Area	AREA Size	Set Area Of Measuring Air Flow
Sleep Mode	SLP	Yes or No

6-2-Entering or Exiting Setup

When the meter is in Setup mode, the display shows SETUP.

Press  button for 2 seconds start or exit Setup.

6-3-Changing a Setup Option

- 1.Press  or  to scroll to the setup option you want to change.
- 2.Press  to indicate that you want to change this setting.
- 3.Press  or  until the setting you want to use appears on the display.Press  to store the new setting in memory.

Notes: Setup is disabled in MIN MAX/AVG mode.

6-4-Temperature Unit

When one want to change the temperature unit. enter TEMP Unit setup operation, Press  or  until the display show $^{\circ}\text{C}$ or $^{\circ}\text{F}$. Press , and then store the new setting in memory.



6-5-Light Unit

When one want to change the Lightunit. enter LIGHT Unit setup operation, Press ▲ or ▼ until the display show LUX or FC, Press , and then store the new setting in memory.



6-6-Sound Unit

When one want to change the sound unit. Enter Sound Unit setup operation, Press ▲ or ▼ until the display show dBA or dBC, Press , and then store the new setting in memory.



6-7-Offset

The secondary display shows the temperature plus the offset and the primary display shows the offset. You can store individual offsets for TYPE K temperature. Press ▲ or ▼ to increase or decrease offsets, Press , and then store the new setting in memory.



6-8-Velocity Unit

When one want to change the velocity unit. Enter velocity Unit setup operation, Press ▲ or ▼ until the display show the unit you want to change, Press  store the new setting in memory.



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

6-9-Flow Unit

When one want to change the flow unit. Enter Flow Unit setup operation, Press ▲ or ▼ until the display show CFM or CMM, Press  store the new setting in memory.



Notes: $CFM(ft^3/min) = Air\ Velocity(ft/min) \times Area(ft^2)$
 $CMM(m^3/min) = Air\ Velocity(m/s) \times Area(m^2) \times 60$
 CFM: cubic feet per minute
 CMM: cubic meters per minute

6-10-Area Unit

When one want to change the area unit. Enter area Unit setup operation, Press ▲ or ▼ until the display show the unit you want to change, Press  store the new setting in memory.



6-11-Area Size

1. When the meter is in Setup mode, Press ▲ or ▼ to scroll to the area size setup option.
2. Press  button. The secondary display shows the area number and area unit. The primary display shows the area being used. Such as "S-3", that is "the three number of area size setting", The numbers change circularly from 1 to 6.
3. Press ▲ or ▼ to scroll to choose the area that you want to change.
4. Press  to indicate that area number with a flashing digit.
5. Press ▲ or ▼ to change the flashing digit from 0 to 9.
6. Press  to change the station of flashing digit and press ▲ or ▼ to change the number, the adjust order is from right to left.
7. Press  to store the new area in memory.



6-12-Auto Power off Mode

The meter 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 meter is in Setup mode, the display shows SETUP. Press ▲ or ▼ to scroll to the "SLP" page. Press  to indicate "On" or "OFF". Press ▲ or ▼ until the setting you want to use appears on the display. Press  to store the new setting in memory. On (sleep mode on) or OFF (sleep mode off).



6-13-Measuring RH% & Temperature

1. Connect the "RH% & Temperatures of Probe" to the "Probe Input Socket".
2. Press  to toggle showing the Temperature in the primary display.
3. Press  to toggle showing the humidity in the secondary display.
4. Press ▲ can change the temperature units between °C and °F.

6-14-Measuring TYPE K Temperature

1. Hold or attach the thermocouple(s) to the measurement location.
2. Press  to toggle showing the TYPE K Temperature in the primary display.
3. Press  can change the temperature units between °C and °F.

Notes:

The display shows "- - -" when a thermocouple is not connected.

The display shows OL or -OL (overload) when the temperature being measured is outside the thermocouple's valid range.

6-15-Measuring Sound

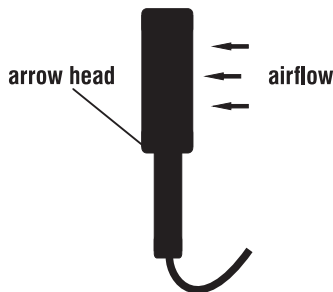
1. Press  to toggle showing the Sound in the secondary display.
2. Press  can switch between FAST and SLOW mode.
3. Press  can change the sound units between dBA and dBC.

6-16-Measuring Light

1. Connect the Light Probe to the "Probe Input Socket".
2. Press  to toggle showing the Light in the secondary.
3. If Light of Probe is closed, secondary readings of the Light number is not "0.000", press the  button for more than 2 seconds can zero the Light. The meter will reset and display "0000" from right to left. 0.000 will be display.

6-17-Measuring Air Velocity & Air Flow

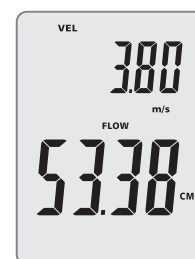
1. Connect the sensor to the sensor input jack right of the meter.
2. Press  to toggle showing the Velocity in the primary display.
3. Place the sensor in the air current. The orientation, which arrowhead falls on, is identical as air current (see blow picture).
4. Press  to select the desired air velocity units.
5. View the air velocity readings on the the primary display.



6. Press  to toggle showing the area in secondary display.
7. Press  again to toggle showing the flow in the secondary display.



8. If you want to change the area number after step 6, press  button for 2 seconds to start area setting option. Press  or  to scroll to choose the area that you want to change. Then press  to indicate that area number with a flashing digit. Press  or  to change the flashing digit from 0 to 9. Press  to change the station of flashing digit. Press  or  to change the flashing digit. The adjust order is from right to left. At last, press  to show the air flow number.



6-18-Holding the Displayed Readings

1. Press  to freeze the readings on the display. The display shows HOLD.
2. Press  again to turn off the HOLD function.

6-19-Viewing the MIN, MAX, and AVG Readings

1. Press  to step through the maximum (MAX), minimum (MIN), or the average (AVG) readings.
2. Press  to show the maximum, minimum, and average of air velocity, Temperature (humidity probe), and TYPE K Temperature.
3. Press  to show the maximum, minimum, and average of light, sound, air flow and humidity value.
4. Press  button for 2 seconds to exit MAX/MIN/AVG mode.

Notes: HOLD, MIN/MAX/AVG and Setup can be used when measuring

7-Replacing the Batteries

1. Turn off the meter if necessary.
2. Loosen the screw and remove the battery door.
3. Replace 9V batteries.
4. Replace the battery door and tighten the screw.