



MT941

Professional Multifunction Environment Meter



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1. Introduction

Congratulations on your purchase of the MT941 Professional Multifunction Environment Meter

- The 5 in 1 digital Multifunction Environment Meter has been designed to combine the functions of a Sound Level Meter, Light Meter, Humidity Meter, Temperature Meter and CFM/CMM Thermo-Anemometer. It is an ideal Multifunction Environment Meter 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

- Large LCD display with backlight.
- MAX, MIN and AVG measurements.
- Display shows Sound, Light, K-Type Temperature, Humidity & Temperature as well as Air Velocity & Air Flow simultaneously.
- Electronic Offset function allows compensation of thermocouple errors to maximize overall accuracy.
- 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.
- Easy to set Area dimension (up to 6 points) for air flow measurement.
- USB interface, USB to UART Bridge Controller.
- Low battery indication, Auto Power Off (Sleep mode) adjustable.

3. General Specifications

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

4. Manometer Specification

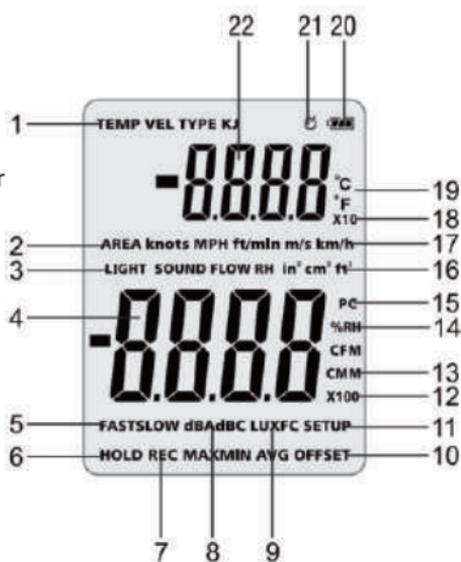
Function	Range	Resolution	Accuracy
Sound Level	30dB-130dB	0.1	±3.5dB at 94dB Sound level 1KHz sine wave
Light	20000Lux	0.1,1,10	±(5+10d)
Humidity and Temperature	5%~98%RH	0.1	±3.5%RH
	10~30°C (50~86°F)	0.1	±1°C/±1.8°F
K type Temperature	-30~9.99°C (-22~50°F) 31~60°C (88~140°F)	0.1,1	±2°C / ±3.6°F
	-99.9~99.9°C (-148~212°F)	0.1,1	± [1.5%rdg + 1°C (1.8°F)]
-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	

5. Button Specifications

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

6. Display icons Description

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. K-Type Temperature Offset Option, OFFSET Display.
11. Entering or Exiting Setup Mode
12. Multiplier (x 10 orx 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 (x10)
19. Units of Temperature
20. Low Battery Indicator
21. Auto Power OFF Mode Indicator
22. The Primary Display



7. Changing Setup Options

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

7.1. Setup Options

Function	Function	Function
Temperature Unit	TEMP Unit	Set Temperature Unit (°C or °F)
Light Unit	LIGHT Unit	Set Light Unit (LUX or FC)
Sound Unit	SOUND Unit	Set Sound Unit (dBA or dBC)
Offset	K-Type OFFSET	K-type 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

7.2. Entering or Exiting Setup

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

Press the  button for 2 seconds to start or exit Setup.

7.3. Changing a Setup Option

1. Press the ▲ or ▼ button to scroll to the setup option you want to change.
2. Press the  button to change the setting.
3. Press the ▲ or ▼ button until the setting you want to use appears on the display. Press  to store the new setting in the memory.

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

7.4. Temperature Unit

To change the temperature unit, enter TEMP Unit setup operation. Press the ▲ or ▼ button until the display show °C or °F. Press the  button, to store the new setting in the memory.



7.5. Light Unit

To change the Light unit, enter LIGHT Unit setup operation. Press the ▲ or ▼ button until the display shows LUX or FC, Press the  button, to store the new setting in the memory.



7.6. Sound Unit

To change the sound unit, enter SOUND Unit setup operation. Press the ▲ or ▼ button until the display shows dBA or dBC. Press the  button, to store the new setting in the memory.



7.7. Offset

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



7.8. Velocity Unit

To change the velocity unit, enter VELOCITY Unit setup operation.

Press the ▲ or ▼ button until the display shows the unit you want to change.

Press the  button, to store the new setting in the memory.



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

7.9. Flow Unit

To change the flow unit, enter the FLOW Unit setup operation.

Press the ▲ or ▼ button until the display shows CFM or CMM.

Press the  button, to store the new setting in the memory.



- Note:**
- $\text{CFM (ft}^3/\text{min)} = \text{Air Velocity(ft/min)} \times \text{Area(ft}^2\text{)}$
 - $\text{CMM (m}^3/\text{min)} = \text{Air Velocity(m/s)} \times \text{Area(m}^2\text{)} \times 60$
 - CFM: cubic feet per minute
 - CMM: cubic meters per minute

7.10. Area Unit

To change the area unit. Enter area Unit setup operation.

Press the ▲ or ▼ button until the display show the unit you want to change.

Press the  button store the new setting in the memory.



7.11. Area Size

1. When the meter is in Setup mode, Press the ▲ or ▼ button to scroll to the area size setup option.
2. Press the  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 the ▲ or ▼ button to scroll and choose the area that you want to change.
4. Press the  button to indicate the area number with a flashing digit.
5. Press the ▲ or ▼ button to change the flashing digit from 0 to 9.
6. Press the  button to change the station of flashing digit and press the ▲ or ▼ button to change the number, the adjust order is from right to left.
7. Press the  button to store the new area in the memory.



7.12. Auto Power off Mode

The meter will automatically shut off after 20 minutes of inactivity.

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

Press the ▲ or ▼ button to scroll to the "SLP" page.

Press the  button to indicate "ON" or "OFF". Press the ▲ or ▼ button until the setting you want to use appears on the display.

Press the  button to store the new setting in the memory.



- Note:**
- On (sleep mode on)
 - OFF (sleep mode off)

7.13. Measuring RH% & Temperature

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

7.14. Measuring K-Type Temperature

1. Hold or attach the thermocouple(s) to the measurement location.
2. Press the  button to toggle showing the K-Type Temperature in the primary display.
3. Pressing the ▲ button will change the temperature units between °C and °F

Note: 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.

7.15. Measuring Sound

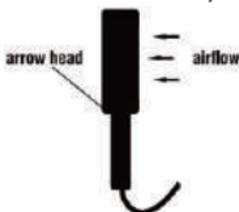
1. Press the  button to toggle showing the Sound in the secondary display.
2. Press the  button to switch between FAST and SLOW mode.
3. Press the ▼ button to change the sound units between dBA and dBC

7.16. Measuring Light

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

7.17. Measuring Air Velocity & Air Flow

1. Connect the sensor to the sensor input jack on the right hand side of the meter.
2. Press the  button 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 the ▲ button to select the desired air velocity units.
5. View the air velocity readings on the the primary display.



6. Press the  button to change the area in secondary display.
7. Press the  button again to change the flow in the secondary display.
8. If you want to change the area number after step 6.
 Press the  button for 2 seconds to start area setting option.
 Press the ▲ or ▼ button to scroll to chose the area that you want to change.
 Then press the  button to indicate that area number with a flashing digit.
 Press the ▲ or ▼ button to change the flashing digit from 0 to 9.
 Press the  button to change the station of flashing digit.
 Press the ▲ or ▼ button to change the flashing digit.
 The order is from right to left.
 Press the  button to show the air flow number.

7.18. Holding the Displayed Readings

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

7.19. Viewing the MIN, MAX, and AVG Readings

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

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

8. Replacing the Batteries

1. Turn off the meter.
2. Loosen the screw and remove the battery cover.
3. Replace the 9V battery.
4. Replace the battery cover and tighten the screw.



MAJOR TECH (PTY) LTD

South Africa

 www.major-tech.com

 sales@major-tech.com

Australia

 www.majortech.com.au

 info@majortech.com.au

