INSTRUCTION MANUAL

MT941

5-IN-1MULTIFUNCTION ENVIRONMENTAL METER

Contents

Page no

1. INTRODUCTION

- 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: mis, 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.

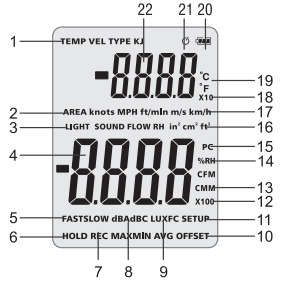
3. BUTTON IDENTIFICATION

1. Press ⏻ to turn the meter on or off.
2. Press MAX/MIN to step through the maximum, minimum, and average readings. To exit the MIN/MAX/AVG mode, press RECORD button for 2 seconds to return to normal operation.
3. Press UNIT to toggle showing the Temperature (Humidity Probe), and K Type Temperature in the primary.
4. Press HOLD to freeze or unfreeze the displayed readings. The meter is in area setup option, press HOLD to change the station of flashing digit.

5. Press MAX MIN AVG REC 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 MAX MIN to switch between FAST and SLOW mode. When secondary readings shows the Light, press MAX MIN for 2 seconds to zero the Light. When the meter is in Setup mode, press SEL UNIT to enter a setup option and press MAX MIN 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, press▼ to scroll to the Setup option you want to change or press ▼to decrease the displayed setting.

4. 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 (x10 or x100)
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 Indicators
22. - The Primary Display



5. 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.

5.1. Setup Options

Option	Menu Item	Settings
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	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 /in² or cm² or ft²)
Size of Area	AREA Size	Set Area Of Measuring Air Flow
Sleep Mode	SLP	Yes or No

5.2. Entering or Exiting Setup

When the meter is in Setup mode, the display shows SETUP. Press button for 2 seconds start or exit Setup.

5.3. 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.

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

5.4. Temperature Unit

When one want to change the temperature unit. Enter TEMP Unit setup operation, Press ▲ or ▼ until the display show ˚C or ˚F. Press , and then store the new setting in memory.

5.5. Light Unit

When one wants to change the Light unit, enter LIGHT Unit setup operation, Press▲or▼until the display shows LUX or FC, Press [MAX], and then store the new setting in memory.

5.6. Sound Unit

When one wants to change the sound unit, enter Sound Unit setup operation. Press▲or▼ until the display shows dBA or dBC. Press [MAX] to store the new setting in memory.

5.7. 0ffset

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 [MAX] to store the new setting in memory.

5.8. Velocity Unit

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

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

5.9. Flow Unit

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

Notes:

CFM (ft^3/min) = Air Velocity (ft/min) x Area (ft^2)

CMM (m^3/min) = Air Velocity (m/s) x Area (m^2) x60

CFM: cubic feet per minute

CMM: cubic meters per minute

5.10. Area Unit

When one wants to change the area unit, enter area Unit setup operation. Press▲or▼ until the display show the unit you want to change. Press [AIR/AREA] to store the new setting in memory.

5.11. Area Size

1. When the meter is in Setup mode, press▲ or▼to scroll to the area size setup option.
2. Press [AIR/AREA] 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 numbers of area size setting". The numbers change circularly from 1 to 6.
3. Press▲or▼ to scroll to chose the area that you want to change.
4. Press [AIR/AREA] to indicate that area number with a flashing digit.
5. Press▲or▼ to change the flashing digit from 0 to 9.
6. Press [HOLD] to change the station of flashing digit and press▲or▼to change the number. The adjust order is from right to left
7. Press [AIR/AREA] to store the new area in memory.

5.12. 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 is pressed 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).

5.13. 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 ▲ will change the temperature units between °C and °F.

5.14. 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 ▲ will 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.

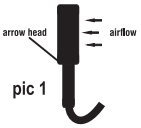
5.15. Measuring Sound

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

5.16. 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 to zero the Light .The meter will reset and display "0000" from right to left. 0.000 will be display.

5.17. Measuring Air Velocity & Air Flow



1. Connect the sensor to the sensor input jack right of the meter.
2. Press (SETUP/TEST) 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 pic 1)
4. Press ▲ to select the desired air velocity units.
5. View the air velocity readings on the primary display.
6. Press (MAX/MIN/AVG/SOUND/FLOW) to toggle showing the area in secondary display.
7. Press (MAX/MIN/AVG/SOUND/FLOW) again to toggle showing the flow in the secondary display.

8. If you want to change the area number after step 6, press (ft²/ATM) button for 2 seconds to start area setting option. Press ▲ or ▼ to scroll to chose the area that you want to change. Then press (ENT) to indicate that area number with a flashing digit. Press ▲ or ▼ to change the flashing digit from 0 to 9. Press (HOLD) to change the station of flashing digit. Press ▲ or ▼ to change the flashing digit. The adjust order is from right to left. Lastly, press (ENT) to show the air flow number.

5.18. Holding the Displayed Readings

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

5.19. Viewing the MIN, MAX, and AVG Readings

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

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

6. 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.

7. Specifications

7.1. General Specifications

Function	Range
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 gift box with carrying case.

7.2. 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
K-type Temperature	-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%±40ft/min
	(3.6-108.0)km/h	0.1	±3%±0.8km/h
	(2.2-67.0)MPH	0.1	±3%±0.4MPH
	(1.9-58.0)Knots	0.1	±3%±0.4Knots
Air Flow	(0-999900)CFM	0.001-100	Accuracy is function of Velocity & Arean
	(0-999900)CMM	0.001-100	

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