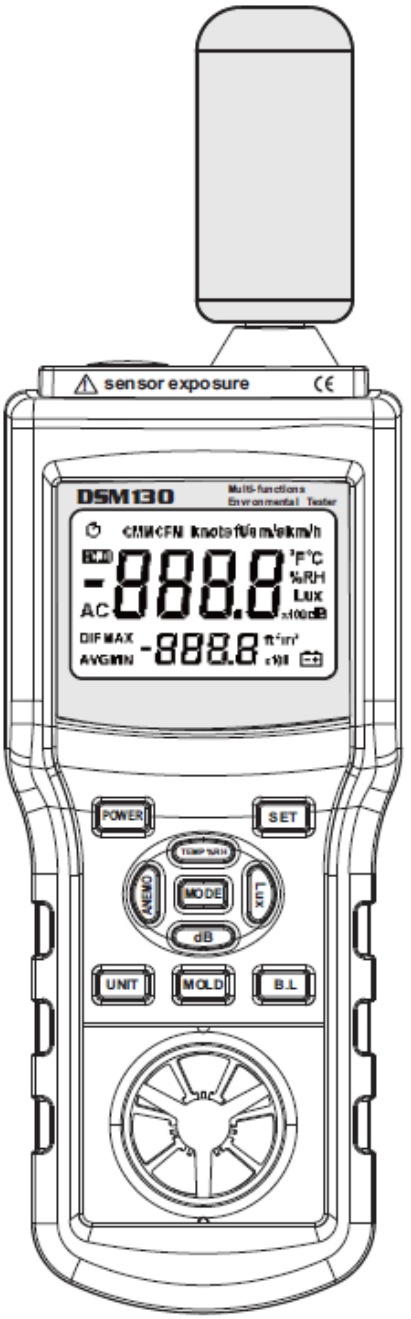
Dawson DSM130

Multifunction Environment Tester

User's Manual



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LIMITED WARRANTY AND LIMITATION OF LIABILITY

This instrument from Dawson Tools Inc. will be free from defects in workmanship and material for three years from the date of original purchase. This warranty does not cover defects resulting from damage caused by the user such as drops, neglect, misuse, unauthorized alteration, usage outside of specified conditions, contamination, or improper repair/maintenance. To receive service on the instrument if it becomes necessary during the warranty period, contact your nearest Dawson authorized service center at (800) 898-6991 or visit www.DawsonTools.com to obtain a return authorization (within the US only). A return authorization is necessary before returning any instrument to Dawson; no service will be provided without a return authorization. The user is responsible for properly packing the unit and charges such as shipping, freight and insurance charges. The extent of Dawson's liability is limited solely to the repair/replacement of the instrument. The above warranty in its entirety is inclusive and no other warranties, written or oral, are expressed or implied.

Out of the Box

Check the Meter and accessories thoroughly before using the Meter. Contact your local distributor if the Meter or any components are damaged or malfunction.

Accessories

- Microphone cover 1pc
- Meter tripod 1pc
- 9V Battery 1pc
- Case 1pc
- User's Manual

Safety Information

⚠ WARNING

TO REDUCE THE RISK OF FIRE, ELECTRICAL SHOCK, PRODUCT DAMAGE OR PERSONAL INJURY, PLEASE FOLLOW THE SAFETY INSTRUCTIONS DESCRIBED IN THE USER MANUAL. READ THE USER MANUALS BEFORE USING THE METER.

⚠ WARNING

TO ENSURE SAFE OPERATION AND LIFE OF THE METER, DO NOT PLACE THE METER IN ANY ENVIRONMENT WITH HIGH PRESSURE, HIGH TEMPERATURE, DUST, EXPLOSIVE GAS OR VAPOR.

- Avoid shaking, dropping or any kind of impacts when using or transporting the Meter.
- To avoid electric shock or personal injury, repairs or servicing not covered in this manual should be performed only by qualified personnel.
- Avoid direct exposure to sunlight to ensure extended life of the Meter.
- Do not place Meter in a strong magnetic field; this may cause false readings.
- Use only the batteries indicated in the Technical Spec.
- Avoid exposing batteries to humidity. Replace batteries as soon as the low battery indicator appears.
- Please keep the original packing for future shipping purposes (ex. Calibration)
- After opening the box, check for any damage during delivery.
- Repair or maintenance should be implemented by trained personnel.

Safety Symbols on the Meter

	Important safety information, please refers to the user manual

Certification

- CE The Meter is compiled to EMC requirements.

Introduction

Overview

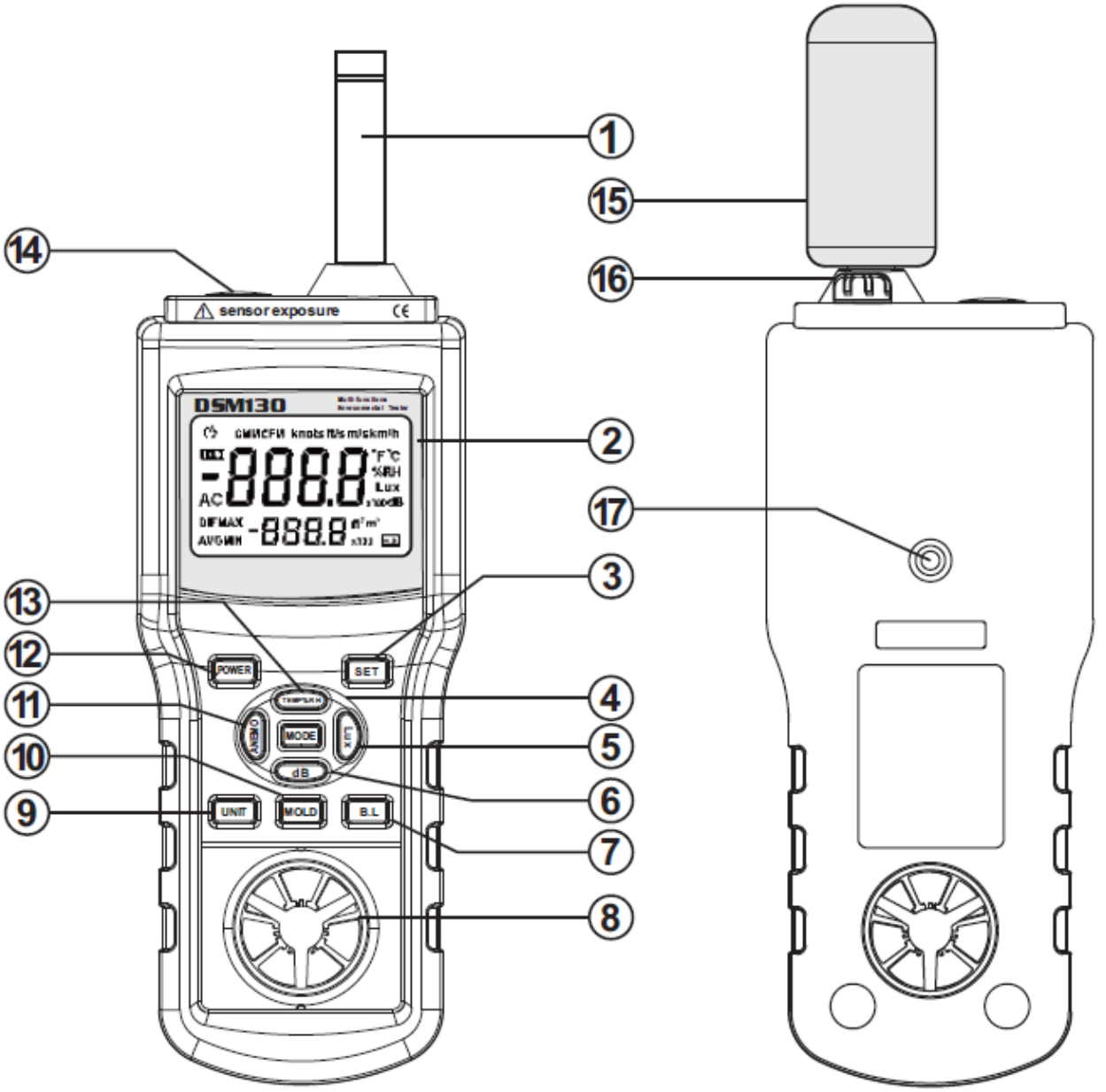
The DSM130 is a portable digital multifunction environment meter which features sound level, ambient temperature, relative humidity, luminosity and wind speed measurements. The detachable stand is deal for travel and office use. This DSM130 an All-in-One environment meter that is ideal for both professional and hobbyists.

Figures and Components

Buttons and Components

1. Microphone
2. LCD Display
3. “**SET**” Button
4. “**MODE**” Button
5. “**LUX**” Button
6. “**Db**” Sound Level Button
7. “**B.L**” Back Light Button
8. Airflow Sensor
9. “**UNIT**” Button
10. “**HOLD**” Data Hold Button
11. “**ANEMO**” Button
12. “**POWER**” Button
13. “**TEMP/%RH**” Temperature/ Humidity Button
14. Illuminance Sensor
15. Microphone and Cover
16. Temperature/ Humidity Sensor
17. Tripod Connector

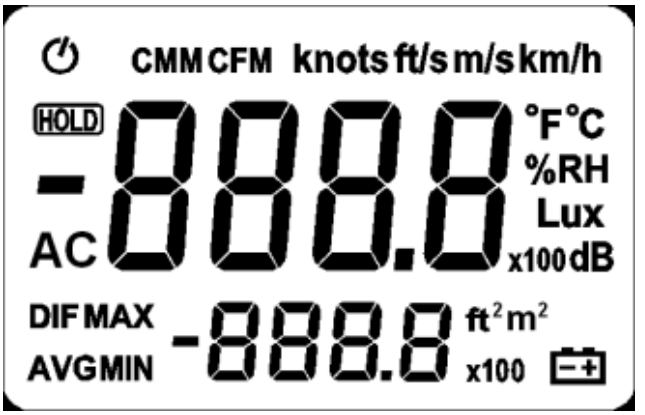
Front Panel


1
15
16
14
sensor exposure
DSM130
2
17
3
13
12
POWER
SET
4
11
MODE
5
10
dB
6
9
UNIT
MOLD
B.L
7
8

Buttons and Components Description

UNIT Button	Switch Units Between **°C** And **°F**
POWER Button	Switch ON/OFF The Power
MODE Button	Switch Between **MAX**, **MIN**, **AVG** And **DIF**
HOLD Button	Hold Reading
SET Button	Confirm the setting
B.L Button	Hold The Button to Control Backlight
RANGE Button	Choose Auto or Manual Range
REL Button	Relative Measurement
TEMP/ %RH Button	Switch Between Temperature and Relative Humidity.
Lux Button	Illuminance Measurement
ANEMO Button	Wind Speed or Airflow Measurement
dB Button	Sound Level Measurement

Display Description



°C	Celsius
°F	Fahrenheit
%RH	Relative Humidity Units
m/s, km/h, ft/,s, Knots	Speed Units
Ft^2, m^2	Area Units
CMM,	Cubic Meter per Minute
CFM	Cubic Feet per Minute
Hold	Data Hold
REL	Relative Measurement
Auto	Auto Range
	Low Battery Indicator
dB	Decibel
Lux	Illuminance Unit
x10, X100	Decuple, Hundredfold
A,C	A and C Weighting
MAX,MIN,AVG,DIF	Maximum, Minimum, Average, and Difference of Max/Min
	Auto Power Off ON

Using the Meter

Readings Hold

- Press "**HOLD**" button to hold the readings of current measurement.
- Press "**HOLD**" button again to release the hold.

Backlight

- Press the "**B.L**" button for to turn on backlight. The backlight will go off automatically after 10 seconds.
- Press the **B.L**" button for two seconds again to manually turn off the backlight.

NOTE:

Backlight requires a large working current; although the Meter backlight will turn off automatically after 10 seconds, frequent use of the backlight will shorten the life of the batteries. Do not use the back light unless necessary.

When the battery voltage is ≤7V, "" (battery low) will appear on the LCD. When the backlight is on, even if the batter is ≥7V, "" may appear because of its large working current which causes the voltage to drop. (The

accuracy of the measurement cannot be assured when the “  ” symbol appears.) In this case no battery replacement is necessary. Only do so when “  ” appears when the back light is not being used.

Auto Power Off

- If there is no operation within any 20 minute period, the meter will auto off.
- To disable the auto power off function, hold “**POWER**” and press “**SET**”.

AVG/MAX/MIN/DIF

- Press “MODE” to choose AVG- Average, MAX- Maximum, MIN- Minimum and DIF- (MAX – MIN) under any modes. Press multiple times to switch between modes.

Temperature measurement

NOTE:

For best result, place the Meter in the tested environment for at least 20 minutes.

- The meter defaults to temp. mode; the default scale setting is set to Fahrenheit °F scale. Change

scale to Celsius °C by pressing "**UNIT**" button and again to return to Fahrenheit.

Relative Humidity (%RH) Measurement

NOTE:

For best result, place the Meter in the tested environment for at least 20 minutes.

- Press "**TEMP/%RH**" to measure relative humidity, the response time of the sensor is 5 seconds.
- Press "**TEMP/%RH**" again to return to temperature.

Sound level (dB) measurement

- Place the microphone near the sound source. Press the "**dB**" button to measure Sound level.
- The default scale setting is **A-Weighting**, press "**UNIT**" to switch to **C-Weighting**.

NOTE:

Strong wind striking the microphone call cause misreading for measurement in a windy location; the microphone cover should be used.

Illuminance (Lux) measurement

- Move the light sensor located in front of the Meter to the light source in a horizontal position. Press "**Lux**" to measure illuminance.
- Read of measurements from the LCD.

Wind speed measurement

- Make sure the fan sensor is in an upright position and is perpendicular to the target air flow.
- Press "**ANEMO**" to measure wind speed. The default scale setting is set at **m/s** scale. Change the scale setting to **km/h**, **ft/s** or **knots** by pressing "**UNIT**" button.

Air Flow Measurement

- Press "**ANEMO**" twice to switch to air flow measurement. Default scale is **CMM** (Cubic Meter per Minute); press **"UNIT"** once to switch to **CFM** (Cubic Feet per Minute) mode and again to switch back to **CMM**.

- Before measuring, set the area of the air flow first; the default value is 1.0m^2. Press "**SET**" button to enter area setting, press "**UNIT**" button to select which digit of the area to change and press "**HOLD**" button or "**B.L**" button to increase or decrease values as desired.
- Press "**SET**" button to save the setting.
- Place the Meter in the testing environment and to be sure the fan is in an upright position facing the air flow.

NOTE:

Avoid direct sunlight when measuring the Wind speed and the Air flow.

Specifications

General Specification

- Display: 4 digit LCD
- Sampling time: approx. 2 samples/sec
- Auto power off time: 30 min
- Power Supply : 1 x 9V battery
- Battery low indication: “  ” on LCD
- Temperature Index: < 0.1× Accuracy /°F
- Operating Temperature: 14°F to 140°F (-10°C to 60°C)
- Storage Temperature: 10°F to 122°F (-10°C to 50°C
- Dimension: 280×89×50mm (11x3.5x2.1 in.)
- Weight: approximate 430g (14oz) including batteries

Technical Specifications

Temperature

Range	Resolution	Accuracy
14°F~140°F	0.1°F	±2.7°F
-10°C~60°C	0.1°C	±1.5°C

Relative Humidity

Range	Resolution	Accuracy
20~80% RH	0.1% RH	±3%RH @77°F
(<20, >80)% RH	0.1% RH	±5%RH @77°F

Sound level (dB)

Range	Resolution	Accuracy
30~130 dB(A)	0.1 dB	±1.5 dB
35~130 dB(C)	0.1 dB	±1.5 dB

Test condition: 94dB 1 kHz sine wave

Response frequency: 100 ~ 8000Hz

Illuminance (Lux)

Range	Resolution	Accuracy
0~2000 Lux	1 Lux	±(5.0% of rdg + 10digits) At color temp. 2850K calibrated to standard incandescent lamp at color temperature 2856 k
X10 (20000)	10 Lux	
X100 (50000)	100 Lux	

Wind Speed

Range	Resolution	Accuracy
0.5~20 m/s	0.1 m/s	±(3% of rdg+10 digits)
1.8~72 km/h	0.1 km/h	±(3% of rdg+10 digits)
1.6~65.7 ft/s	0.1 ft/s	±(3% of rdg+10 digits)
0.9~38.9 knots	0.1 knots	±(3% of rdg+10 digits)

Airflow

Range	Resolution	Accuracy
0~999900 CMM	±(3% of rdg+10 digits)	0～999.9m^2
0~999900 CFM	±(3% of rdg+10 digits)	0～999.9ft^2

Maintenance and Repair

Repair

Please follow these steps closely if the Meter is not functioning properly:

- Check batteries; replace with new batteries if low battery indicator "  " appears.
- Follow User's Manual to confirm all procedures.
- Before sending Meter back for repair, include a description of the problems encountered. Remove batteries and pack Meter well to avoid damage in delivery, Dawson does not cover damage due to delivery.
- Repair or service not covered in this manual should be performed only by the authorized service center or qualified personnel.

Replacing Battery

Follow the steps to replace battery:

- Turn off the Meter.
- Remove the red protective case of the Meter.
- Loosen the battery compartment door screw, and remove the door from the case bottom.
- Remove the battery and replace the battery with new battery.
- Reattach the battery compartment door to the case bottom and tighten the screw.
- Put back the red protective case.

Contact Dawson

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Do not recycle

(Back Page)

Features

- LCD Display
- Auto and Manual Range
- Auto Power Off
- MAX/MIN Display
- Back Light
- Data Hold
- Average
- Differential
- Low Battery Indicator