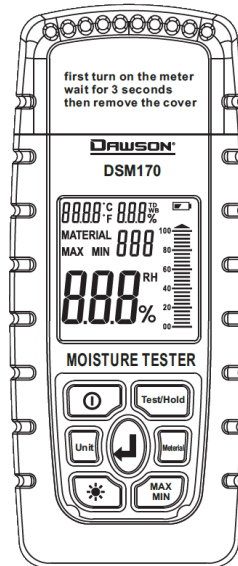


# Dawson DSM170

## Multi-Function Moisture Meter

### 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](http://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

- User's Manual
- AAA Batteries       x2
- Case

## 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 MANUAL 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.

### Safety Symbols

	Important safety message
	Conforms to relevant European Union directives

### Warning Symbols

 <b>Warning</b>	Risk of danger. Important information. See Users Manual
 <b>Caution</b>	Statement identifies conditions and actions that failure to follow the instructions could result false readings, damage the Meter or the equipment under test.

 **WARNING**

**TO AVOID ELECTRICAL SHOCK AND INJURY, COVER THE METER WITH PROTECTIVE COVER WHEN NOT IN USE.**

 **Caution**

**To avoid possible electric shock or personal injury:**

- Use the Meter only as specified in this manual or the protection provided by the Meter might be impaired.
- Do not place the Meter near explosive gases or vapor.
- Read the User's Manual before use and follow all safety instructions.
- Operate the Meter between 14~122°F (-10~50°C).
- 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.
- Check the terminals every time before operating the Meter. Do not operate the Meter if the terminals are damaged or one or more functions are not working properly.
- Avoid exposing the Meter to direct sunlight to ensure and extend the life of the Meter.
- Do not place the Meter in a strong magnetic field, it may cause false readings.
- Use only the batteries indicated in the Technical Spec.
- Avoid exposing the battery to humidity. Replace the batteries as soon as the low battery indicator appears.
- Sensitivity of the Meter to temperature and humidity will be lower over time. Please calibrate the Meter periodically for best performance
- Please keep the original packing for future shipping purposes (ex. Calibration)

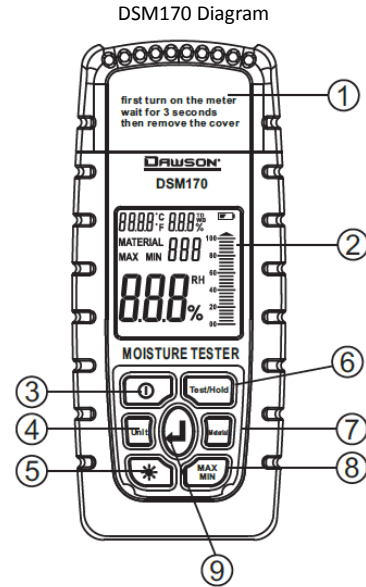
## Introduction

### **Overview**

DSM170 is a material moisture, temperature, humidity all-in-one multi functions Meter. The Meter is ideal for measuring moisture of wood and concrete buildings.

## Figures and Components

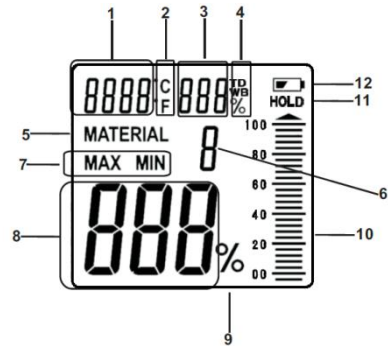
- (1) Terminal Protective Cover.
- (2) LCD Display
- (3) On/Off Button: Press once to turn the Meter on, hold for 1 sec to turn it off.
- (4) Temperature/Moisture Unit Settings:
  - Temp: °C/°F
  - Moisture: %/WB/TDThe Meter will exit unit switching mode if “Enter” button is not pressed after 8 sec.
- (5) Backlight Button
- (6) Display Hold Button
- (7) Switch between testing materials
- (8) Maximum/Minimum Display Button
- (9) Enter Button.





## LCD Display Panel

- ① Current Temperature
- ② Temperature Unit
- ③ Current Moisture
- ④ Moisture Unit
- ⑤ Material
- ⑥ Material Label
- ⑦ Maximum/Minimum
- ⑧ Moisture Readings Display
- ⑨ Moisture Unit
- ⑩ Simulated Moisture Bar
- ⑪ Measure/Hold
- ⑫ Low Battery Indicator



## Using the Meter

### Power On/Off

- Press "On/Off" button to turn on the Meter. The Meter will display as in Figure 2-1-1 and show the current temperature and humidity.
- When the Meter is on, hold "On/Off" button for 1 sec. to turn off the Meter. The Meter will automatically turn off if it is not in operation for 10 minutes.

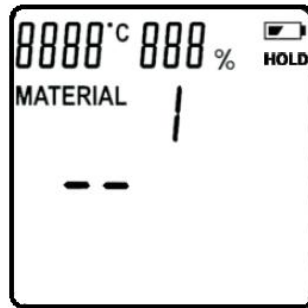


Figure 2-1-1

## Choosing Materials

Press “Material” button to choose from materials 1 to 7 and repeat. Choose proper number correspondingly as follow:

- 1: Beech, Spruce, Larch, Birch, Cherry, Walnut
- 2: Oak, Cedar, Maple, Ash Tree, Citigroup, Tamarisk
- 3: Smoothing Cement, Concrete
- 4: Anhydrite Screed
- 5: Cement Mortar
- 6: Lime Mortar, Plaster
- 7: Brick


## Measure/Hold

- To hold the readings, press “**Hold**” button and Hold will be displayed on the top right corner.
- To cancel hold, press “**Hold**” button again, the Meter will now show current readings.


## Maximum/Minimum

- To show the maximum moisture reading, press “**MAX/MIN**” button till “MAX” is displayed.
- To show the minimum moisture readings, press “**MAX/MIN**” button till “MIN” is displayed.
- To show current moisture readings, press “**MAX/MIN**” button till the LCD does not display “MAX” nor “MIN”
- In “MAX” or “MIN” mode, if the “**MAX/MIN**” button is not pressed for 5 minutes, the Meter will switch back to current moisture readings.

## Switch between Functions

- Press “Unit” button to switch between functions “°C”、 “°F”、 “%”、 “WB” and “TD” (Symbols flash). Press the Enter button “

## Backlight Display

- Press the backlight button “

## Others

- If the LCD display is dim or does not display clearly, replace batteries.
- To ensure accurate readings, measure multiple locations with the Meter.
- To measure woods, stick the Probe in the wood and wait for at least 5 seconds to obtain stable readings.
- Keep the Meter away from any heat source or possible temperature disturbance (ex. Hand).

## Technical Specification

### Measurement Specification

- Electric Conductivity (Resistance Sensor) Range: 0.0~60.0%;
- Temperature (Temperature Sensor) Range: 14.0~122.0°F (-10.0~50.0°C)
  
- Units:  
Material Moisture: %  
Environment Humidity: %, WB, TD  
Environment Temperature: °C, °F
  
- Materials Moisture Range:

Material 1: Beech, Spruce, Larch, Birch, Cherry, Walnut	8.5~60.0%
Material 2: Oak, Cedar, Maple, Ash Tree, Citigroup, Tamarisk	6.8~53.4%
Material 3: Smoothing Cement, Concrete	0.9~24.5%
Material 4: Anhydrite Screed	0.0~12.2%
Material 5: Cement Mortar	0.7~9.2%
Material 6: Lime Mortar, Plaster	0.5~11.1%
Material 7: Brick	0.0~17.8%
  
- Resolution:  
Material Moisture: 0.1%  
Temperature : 0.1°C, 0.1°F  
Humidity: 0.1%
  
- Accuracy (performed under temperature of 77°C) :  
Conductivity: ±2%

Temperature:  $\pm 3.5^{\circ}\text{F}$  (14.0~122.0 $^{\circ}\text{F}$ )

Humidity:  $\pm 5\%$  (10~90%)


- Sample Interval:  
Material Moisture Sample Speed: 240ms ; LCD refresh time: 1.5s  
Temperature Sample Speed: 240ms ; LCD refresh time 1.5s  
Humidity Sample Speed: 240ms ; LCD refresh time 3.5s
- Operation Temperature: 14~122 $^{\circ}\text{F}$  (-10~50 $^{\circ}\text{C}$ )
- Storage Temperature: -40~140 $^{\circ}\text{F}$  (-40~60 $^{\circ}\text{C}$ )
- Batteries: 2x1.5V AAA  
Battery Life: 200 hrs. (w/backlight off)
- Size: 130x55x29mm

Weight : 4.9oz (140g) with batteries and protective cover

## 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 Batteries

Follow these steps to replace batteries:

- Turn off the Meter.
- Loosen the battery compartment door and remove the door from the case bottom.
- Remove batteries and replace with new batteries.
- Re-attach the battery compartment door to the case bottom and tighten screw.

## Calibration

To ensure the accuracy of the Meter, Scheduled calibration is recommended and should be performed only by qualified personnel. Calibrating the Meter annually is recommended. Calibration frequency can be higher or lower depending of the frequency of usage.

## Contact Dawson

Dawson Tools, Inc.  
1142 S. Diamond Bar Blvd., #858  
Diamond Bar, CA 91765  
Phone: (310) 728-6220  
[www.DawsonTools.com](http://www.DawsonTools.com)



Do not recycle

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## **Features**

- LCD Display
- MAX/MIN Display
- Back Light
- Data Hold
- Low Battery Indicator