

all in one, bar graph, LED + LCD

MOISTURE METER

Model : MS-7003



Your purchase of this MOISTURE METER marks a step forward for you into the field of precision measurement. Although this MOISTURE METER is a complex and delicate instrument, its durable structure will allow many years of use if proper operating techniques are developed. Please read the following instructions carefully and always keep this manual within easy reach.



OPERATION MANUAL

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1. FEATURES

- * Designed to check the moisture level of wood, concrete, and other non-wood material.
- * 6 % to 40 % moisture range on wood.
- * 0 to 100% relative moisture value for Concrete and other non-wood material.
- * Red LED bar graph indicator and LCD digital display.
- * All in one, meter build in the test pins.
- * Optional separate probe, available for remote measurement.
- * Microprocessor circuit assures maximum possible accuracy, provides special functions and features.
- * Records Maximum & Minimum reading with recall.
- * Data hold function to freeze the desired value on display.
- * Heavy duty & compact housing case, designed for easy carry out & operation.
- * Built-in low battery indicator.
- * Build the auto power shut off function to prolong the battery life.

2. SPECIFICATIONS

Applications	Designed to check the moisture level of wood, concrete and other non-wood material.
Principal	Used the 2 pins electrode to measure the conductive ability of the species, then converter to the reading of % " Moisture of Content ".
Circuit	Custom one-chip of microprocessor LSI circuit.

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Display	LCD size : 51 mm x 37 mm Digit size : 16 mm (0.62 ")
Material/ Range	Material 1 : 0 to 100% relative moisture value for Concrete. and other non-wood material.
	Material 2 : 6 % to 40 % moisture range on wood.
Resolution	0.1 %.
Accuracy	$\pm (5 \% + 5 d)$ <i>@ 23\pm 5 $^{\circ}$C</i> <i>@ Material 1 : 13 % to 100%</i> <i>@ Material 2 : 6 % to 40%</i>
Probe	2 pins moisture electrode.
Data Hold	By push button on front panel.
Memory Recall	Records Maximum & Minimum reading value.
Sampling Time	Approx. 0.8 second.
Operating Temp./Humidity	0 to 50 $^{\circ}$ C (32 to 122 $^{\circ}$ F). Less than 80 %RH.
Power Supply	Alkaline 006P, MN1604 (PP3) DC 9V battery.
Power Current	Approx. DC 16 mA.
Weight	251 g/0.55 LB.
Dimension	216.5 x 68.5 x 29.7 mm (8.4 x 2.7 x 1.2 inch).
Accessories Included	Instruction manual..... 1 PC. Extra contact pins..... 1 Set.
Optional Accessories	Separate Probe, MP-31 Hard Carrying Case, CA-06 Soft Carrying Case, CA-05A

3. FRONT PANEL DESCRIPTION

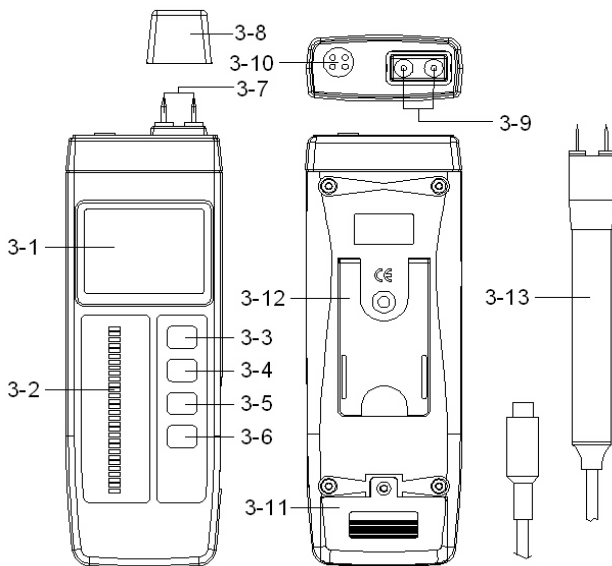
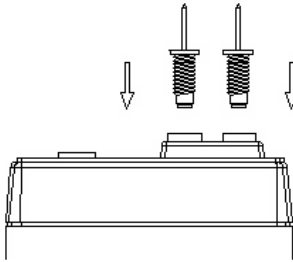


Fig. 1

- 3-1 Display
- 3-2 Red LED bar graph indicator
- 3-3 Power button
- 3-4 Hold button
- 3-5 REC (MAX/MIN) button
- 3-6 Material button
- 3-7 Test pins
- 3-8 Protection cover
- 3-9 Lock nut for test pin
- 3-10 Input socket for external probe
- 3-11 Battery compartment/Cover
- 3-12 Stand
- 3-13 Optional separate probe

4. MEASURING PROCEDURE

If the test pins (3-7, Fig. 1) are not installed to the probe head & packed separately, please refer the following diagram to fix the test pins into the probe.



4-1 Measurement by selecting the different material

- 1) Power on the meter by pushing the " Power button " (3-3, Fig. 1).
Remove the " Protection cover " (3-8, Fig. 1) away from the " Test Pins " (3-7, Fig. 1)
- 2) Press the " Material button " (3-6, Fig. 1) to select the desired testing material.

Material 1 :

- * **0 to 100% relative moisture value for Concrete. and other non-wood material.**
- * **The right bottom display show " 1 "**

Material 2 :

- * **6 % to 40 % moisture range on wood.**
- * **The right bottom display show " 2 "**

- 3) It is recommended that the test pins are inserted to a minimum depth of 2 mm into the material under test. If a depth of 2 mm can not be obtained, then insert the test pins to their maximum achievable depth.

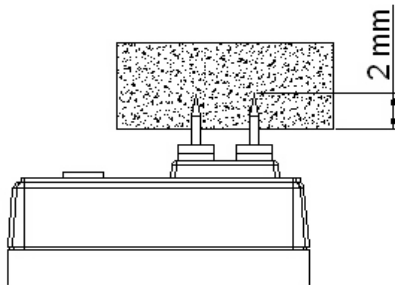


Fig. 2

- 4) Display will show the moisture contents in " % moisture content " directly.

Consideration :

If the sample under test has a high moisture content it may take a few minutes to obtain a stable reading.

4-2 Other Functions

1) Data Hold

- * During measurement, pushing the " Hold button " (3-4, Fig. 1) will hold the display values & the LCD will show the " D.H " symbol.
- * To cancel the Data Hold function, Press the " Hold button " once more.

2) Data Record


- * The data record function records the maximum and minimum readings. Press the " REC Button " (3-5, Fig. 1) once to start the Data Record function. " REC " will be displayed.
- * With the " REC " symbol on the display :
 - a) Press the " REC Button " (3-5, Fig. 1) once, the " REC MAX. " symbol along with the maximum value will appear on the display.
To delete the maximum value, just press the " Hold Button " (3-4, Fig. 1) once. The display will show " REC " and execute the memory function continuously.
 - b) Press the " REC Button " (3-5, Fig. 1) again, the REC MIN. " symbol along with the minimum value will appear on the display. To delete the minimum value, just press the " Hold Button " (3-4, Fig. 1) once, then the display will show the " REC " symbol only and execute the memory function continuously.
 - c) To exit the memory record function, just press the REC" button for at least 2 seconds. The display will revert to the current reading.

4-3 Optional separate probe

If intend to use the sperate probe to make the moisture measurement, just prepare the separate probe (MP-31, optional, 3-13, Fig. 1) and connect the probe plug into the " Input socket " (3-10, Fig. 1)

5. MAINTENANCE

5-1 Replacement of Battery

A low battery is indicated by "  " in the left corner of the display. To replace the battery remove the battery cover with a small screwdriver or coin and replace with a DC 9 V battery (heavy duty type, 006P, MN1604/PP3 or equivalent).

5-2 Replacement of test pins

To replace test pins on the probe, first loosen the lock nut at the base of the pin, slide pin out and replace with new.

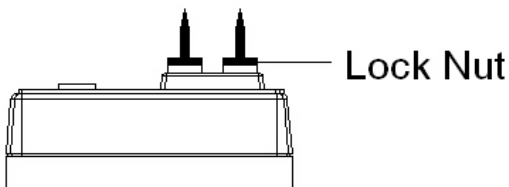


Fig. 3

6. AUTO POWER DISABLE

The meter is built the " Auto power shut off " function in order to prolong the battery life. The meter will switch off automatically If none of any function buttons are pressed within approx. 10 minutes.

If the user intend to disable the " Auto Power off " function, it should take the following procedures :

During the measurement, press the " Record Button " (3-5, Fig. 1) to execute the memory record function.