

GENERAL®

PIN-TYPE LCD MOISTURE METER

USER'S MANUAL



MMD4E



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Please read this manual carefully before using this product.

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INTRODUCTION

Thank you for purchasing General Tools & Instruments' MMD4E Pin-Type LCD Moisture Meter. Please read this user's manual carefully and thoroughly before using the instrument.

The MMD4E is designed for use in woodworking, water damage restoration, building construction and home renovation. Examples include:

- Checking for moisture on or beneath the surface of carpets, sub-flooring, ceilings and walls
- Measuring the surface moisture content of wood and building materials before painting, wallpapering, sealing or treating
- Selecting dry lumber

KEY FEATURES

- Includes separate moisture-resistance curves for wood and building materials
- 99.9 count green backlit LCD w/0.3 in. high digits
- Low, medium and high moisture level lights
- Audible high moisture alert
- Reading **HOLD** button
- Replaceable stainless steel test pins
- Pin cap doubles as calibration checker
- Low battery indication
- 3-minute Auto Power Off
- Powered by “9V” battery (included)
- 1 year limited warranty

WHAT'S IN THE PACKAGE

The MMD4E comes in a blister pack with a factory-installed “9V” battery. Two replacement 9mm (0.35 in.) long test pins—General Part No. PIN3DE—are included.

PRODUCT OVERVIEW

Fig. 1 on the next page shows all of the controls, indicators, and components on the front and top of the MMD4E, as well as the location of the battery compartment on its back.

- A. Protective pin cap with calibrating resistor inside
- B. Test pins with black rubber sleeves (sleeves not shown)
- C. LCD

D. Blue **LOW** moisture level LED


E. **MODE** button. Toggles between wood and building materials measurement modes

F. Green **MID** moisture level LED

G. Red **HIGH** moisture level LED

H. Measurement **HOLD** button.

Pressed briefly, “freezes” display readings. **Pressed and held**, silences beeper until meter is powered off.

I.  button. **Press briefly** to power meter on; **press and hold** for >2 seconds to power meter off.


J. Battery compartment (on back)



Fig. 1

OPERATING INSTRUCTIONS

To measure a moisture level:

1. Remove the pin cap.
2. Remove the black rubber protective sleeve from each test pin.
3. Press the  button to power the meter on. The meter will sound one beep and the LCD will illuminate with a green backlight and the following readout: $_ _ . _ \%$
4. If you are measuring the moisture content of wood, skip ahead to Step 5. To measure the moisture content of a building material, press the **MODE** button. This will change the display to the following: $_ _ . _ \%$

BLDG

5. Carefully press the test pins into the material whose moisture level you wish to measure. The level will be displayed as a percentage. The following tables show the display indications for all possible moisture level readings in Wood and Building Materials Measurement modes.


Wood Measurement Mode Reference Table

Moisture Level	Display Indication(s)
<5%	__ . __%
5% to 11.9%	XX.X% + blue LOW LED
12% to 15.9%	XX.X% + green MID LED
16% to 50%	XX.X% + red HIGH LED + beeper
>50%	— — . — % + red HIGH LED + beeper

Building Materials Measurement Mode Reference Table

Moisture Level	Display Indication(s)
<1.5%	__ . __%
1.5% to 16.9%	XX.X% + blue LOW LED
17% to 19.9%	XX.X% + green MID LED
20% to 33%	XX.X% + red HIGH LED + beeper
>33%	— — . — % + red HIGH LED + beeper

To hold any reading (“freeze” the display), briefly press (but do not hold) the **HOLD** button. To release the hold, briefly press the **HOLD** button again. This feature allows you to make a measurement in a dark place or around a corner, hold the reading, and display it within 3 minutes later where the lighting is better. Measurements can be held for no more than 3 minutes—the duration of the meter’s Auto Power Off trigger.

To power off the meter, press the  button and hold it for more than 2 seconds.

To silence the beeper at any time, press and hold the **HOLD** button for >3 seconds. This will disable the beeper until the meter is powered off. The beeper will automatically be re-enabled when the meter is powered on again.

CHECKING CALIBRATION

You can verify the accuracy of the MMD4E's readings by manually checking its calibration at any time. To do so:

1. Remove the black rubber protective sleeves from the test pins.
2. Remove the pin cap and note the small circuit board attached to the inside of its rear wall. The rear wall also has two small holes (left photo below) that provide access to terminals on the circuit board. The circuit board contains a resistor whose fixed value can be used to simulate a precise moisture level and therefore check the calibration of the meter.
3. Power on the meter and push the test pins into the calibration holes (right photo below). If the meter is properly calibrated, the displayed reading will be $18.3\% \pm 1\%$ in Wood Measurement mode. If you do not obtain a reading within this range and your meter is still under warranty, call General's Customer Service Department at 212-431-6100 to arrange to return the meter for service or replacement.



SPECIFICATIONS

Measurement Range	5 to 50% for wood; 1.5 to 33% for building materials
Measuring Accuracy	±2%
Moisture Range Indications	See tables on page 5
Operating Temperature	32° to 122°F (0° to 50°C) @ <90%RH
Current Consumption	<25mA
Auto Power Off Trigger	3 minutes of inactivity
Backlight Duration	15 seconds
Low Battery Icon Trigger	<7.3V
Dimensions	5.7 x 2.4 x 1.1 in. (145 x 62 x 27mm)
Weight (without battery)	3 oz. (86g)
Power Source	“9V” battery (included)


OPERATING, MAINTENANCE & SAFETY TIPS

- Some measurement tips:

1. Measurements of wood moisture level are skewed by two variables: ambient humidity and the density of the wood species. The best way to compensate for the effect of these variables is to develop your own moisture level curves, based on your experience working with different species of wood on a day-to-day basis in your neighborhood.

For example, the humidity level affects the dryness of interior wood considered “acceptable” for finishing. In the steamy Deep South, where 60% relative humidity is

the norm, fine carpenters have learned how to work with wood with 11% moisture content. But in bone-dry Nevada, Utah, and Arizona, where 30% humidity is common, the same piece of wood would have to have less than 6% moisture to be considered ready for finishing.

2. To locate the source of a leak behind wood, plaster, drywall or a ceiling, make measurements at different locations. The leak is where the meter displays the highest reading.
 3. Never use force to drive the test pins into a hard surface.
 4. When measuring the moisture level of soil, surface readings will be lower than readings with the test pins deep in the soil.
- When the  icon appears at the upper left of the LCD, it's time to replace the "9V" battery that powers the instrument (although measurements will remain valid for several hours after the icon first appears). **To replace the battery**, turn the meter over and open the battery compartment (Fig. 1, Callout J) by using your thumb to slide the compartment cover down and away from the meter. Plug a fresh "9V" battery into the wired socket inside the compartment. The terminals of the battery and the socket mate in only one way, with the smaller male terminal plugging into the larger female terminal. Close the battery compartment by replacing its cover and snapping it shut.
 - Do not operate the MMD4E in the presence of flammable or explosive gases.
 - Be careful not to stab yourself with the extremely sharp test pins.

- Replace the pin cap and black rubber protection sleeves after making measurements 1) for safety reasons and 2) to avoid bending or dulling the pins.
- After subjecting the meter to a large change in ambient temperature, wait at least 30 minutes before making measurements to guarantee the accuracy of readings.
- Remove the battery when storing the unit or when you do not expect to use it for an extended period of time (months rather than weeks).
- Do not drop or disassemble the MMD4E or immerse it in water. Doing so voids the 1-year limited warranty.

WARRANTY INFORMATION

In the U.S, General warrants its instruments and accessories against defects in material or workmanship for one year from the date of purchase. General will replace or repair the defective unit, at its option, subject to verification of the defect.

This warranty does not apply to defects resulting from abuse, neglect, accident, unauthorized repair, alteration, or unreasonable use of the product.

Any implied warranties arising from the sale of a General product, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the above. General shall not be liable for loss of use of the product or other incidental or consequential damages, expenses, or economic loss, or for any claim of such damage, expenses, or economic loss.

State laws vary. The above limitations or exclusions may not apply to you.

We encourage you to register your product online. General will extend your warranty an additional 60 days if you register at www.generaltools.com/ProductRegistry.

RETURN FOR REPAIR POLICY

Every effort has been made to provide you with a reliable product of superior quality. However, in the event your instrument requires repair, please contact our Customer Service to obtain an RGA (Return Goods Authorization) number before forwarding the unit via prepaid freight to the attention of our Service Center at this address:

General Tools & Instruments
75 Seaview Drive
Secaucus, NJ 07094
212-431-6100

Remember to include a copy of your proof of purchase, your return address, and your phone number and/or e-mail address.



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