

Delmhorst Instrument Co.

**Model RDM-2**  
**Owner's Manual**

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**INTRODUCTION**

Congratulations on having purchased one of the finest Wood Moisture Meters available today! The RDM-2 incorporates a versatile microprocessor-based circuit and has been designed to meet high quality standards in both its manufacture and performance. Proper use and care of the instrument will result in many years of reliable service. Please read these instructions carefully before proceeding. If you have questions at any time, call Delmhorst Instrument Co. at (800) 222-0638 for prompt assistance.

## RDM-2 FEATURES

- Dot-matrix “supertwist” display
- On-line display of species, temperature, and % MC
- Maximum storage of 200 readings
- Statistics – average, standard deviation, co-efficient of variation, minimum/maximum
- Software based species and temperature corrections
- Scrolling feature for easy selection of functions
- Recall/Erase any or all readings
- Available memory check
- Auto shut-off timer
- Battery voltage check
- Optional re-chargeable battery with charger

## SPECIFICATIONS

Size:	7½” x 4” x 2¼”
Weight:	14 oz.
Battery:	(1) 9v Alkaline
Range:	*4.5% - 60% wood M.C. for Douglas Fir at 70°F (see note below)
Resolution:	0.1% MC
Operating Temperature:	30°F - 120°F; 0° - 50°C
Temperature Compensation:	-20°F – 260°F; -28°C – 126°C
Species Corrections:	33 species plus 0-100 reference scale
Default Settings:	70°F, Douglas Fir, 2-Pin Electrode (w/insulated pins)

## NOTE: RANGE/VALID READINGS

Readings below 4.5% or above 60% are displayed as “-LO-“ or “-HI-“, respectively (and stored as such).

However, since the resistance of the wood also depends on the species and temperature of the wood, the meter may not always be able to read down to 4.5%. For different species and different wood temperatures, there is a minimum % MC limit below which the meter can not read. All readings below this “LOWEST LIMIT” are displayed with a **BLINKING CURSOR** next to a **MOISTURE VALUE** and stored as “-LO-“. These readings are not considered valid readings and are **NOT USED** by the meter for any statistical calculations.

A VALID READING is displayed with a “%” sign next to its MOISTURE VALUE and stored as such.

## **OPERATION**

The RDM-2 offers 10 different functions. The **STORE** function is activated by its own key, while the other 9 functions are built into the **SELECT** key. Press the **SELECT** key followed by either arrow key to scroll through the list of available functions.

- |                    |                          |
|--------------------|--------------------------|
| 1. SHOW STATISTICS | 5. SHOW BATTERY VOLTAGE  |
| 2. MEMORY RECALL   | 6. CHANGE ELECTRODE TYPE |
| 3. MEMORY ERASE    | 7. CALIBRATION CHECK     |
| 4. METER RESET     | 8. SET TEMPERATURE       |
|                    | 9. SET SPECIES           |

The list always starts with the first function, **Show Statistics?**. Press the “up” arrow key or **SELECT** key to scroll through the list in ascending order; press the “down” arrow key to scroll in descending order. Each function is announced for 5 seconds. Within that time the user must either press **ENTER** to lock in the function or continue scrolling. After 5 seconds the meter will return to its normal mode. The user can change direction of scrolling at any time.

### **TO TURN THE METER “ON”**

Turn the meter on by pressing the **ON/OFF, SELECT, OR STORE** keys. The meter will display the model and software version followed by the current settings for species, temperature, and moisture value. This will be referred to as the “normal mode.”

### **TO TURN THE METER “OFF”**

Press the ON/OFF key. All stored values remain in memory as long as the battery voltage is above 3 volts.

### **AUTO SHUT-OFF TIMER**

The meter is equipped with a 4 minute auto shut-off timer. When the meter is turned on, the timer is activated and remains on for 4 minutes. Each reading of 8% or higher, or any keypad action, reactivates the timer for another 4 minutes. The meter shuts off automatically if it does not see a reading of at least 8%, or if there is not keypad activity for 4 minutes.

## TO CHECK CALIBRATION

The RDM-2 has an internal calibration check to insure the user's full confidence that the meter is electrically correct.

1. If the electrode is attached to the meter, disconnect it.
2. Press the **SELECT** key, followed by the "down" arrow key 3 times. The meter will display **Check Cal.?** (Press **ENTER**)
3. Press **ENTER**. The meter will display CAL. CHECK VALUE = 20.0%. A tolerance of +/- 0.2 is acceptable. If any other value is displayed, change the battery. If the meter still does not calibrate, return it to Delmhorst for recalibration.
4. The temperature, species, and electrode settings do not affect the internal calibration checkpoint.

NOTE: IF USING AN EXTERNAL STANDARD, MCS-1 TO CHECK CALIBRATION, SET THE TEMPERATURE TO 70°F, SPECIES TO DOUGLAS FIR, AND ELECTRODE SETTING TO 4-PIN REGARDLESS OF WHETHER YOU ARE USING A 2-PIN OR 4-PIN ELECTRODE. IF THE METER IS IN CALIBRATION IT SHOULD READ "12%" AND "22%" +/- 0.5.

## TO CHANGE ELECTRODE TYPE

The basic factory calibration of the RDM-2 is for a 2-pin electrode (26-E). Two pin electrodes read lower than 4-pin electrodes (4-E). The difference is small below 10% MC, it increases as the moisture content increases. When using a 4-pin electrode the user can change the basic calibration to compensate for this difference as follows:

1. Press the **SELECT** key followed by the "down" arrow key 4 times. The meter will display **Electrode Type?** (Press **ENTER**).
2. Press **ENTER** to change the electrode type to 4-pin. The meter will display **Electrode Type 4 Pin.**

Repeat steps 1 and 2 to change back to 2-pin.

NOTE: EVERY TIME THE METER IS TURNED ON, IT AUTOMATICALLY SELECTS THE 2-PIN ELECTRODE TYPE.

## TO SET THE SPECIES

The RDM-2 has 33 different species programmed plus a 0-100 reference scale for comparative readings on non-wood hygroscopic materials.

1. Press the **SELECT** key followed by the “down” arrow key once. The meter will display **Change Species?** (Press **ENTER**).
2. Press **ENTER**. The meter will display **Current Species--Douglas Fir**. Press the “up” or “down” arrow key to scroll through the list of species. When the desired species name appears, press **ENTER**. The meter will return to the normal mode and the new species name will be displayed.

## TO SET THE TEMPERATURE

The RDM-2 is programmed to compensate the meter reading for the WOOD temperature. The wood temperature range is from –20 to 260°F (-28 to 126°C).

1. Press the **SELECT** key followed by the “down” arrow key twice. The meter will display **Change Temp?** (Press **ENTER**).
2. Press **ENTER**. The meter will display **Temp.Mode Fahrenheit**. Press **ENTER** to change the mode (CENTIGRADE) or go to step 3.
3. Press the “up” or “down” key to increase or decrease the temperature setting. Each pressing of the key will change the temperature by 5°F (2 or 3°C).
4. Press **ENTER** when the desired setting is displayed to lock the value in the meter. The meter will return to the normal mode and the new temperature setting will be displayed.

## TO STORE READINGS

1. Set the desired species and temperature.
2. Drive the electrode pins into the wood to the desired depth and parallel to the grain. Press the **STORE** key. The meter will display the sample (location) number stored and the available sample (location) count as follows:

**SAMPLE # xxx**  
**yyy AVAILABLE**

Readings of **LO** and **HI** will be stored and displayed as such but will not be used in statistical calculations.

3. Once all the locations (200) are filled, the meter will display **No More Empty Location** when the **STORE** key is pressed.

## TO CHECK STATISTICS

1. Press the **SELECT** key. The meter will display **Show Statistics?** (Press **ENTER**). Press **ENTER**. As long as valid readings (value with a % sign displayed next to it) are stored in the meter, it will display the following for 3 seconds each:

**TOTAL SAMPLES  
STORED -xxx**

**VALID SAMP.       = xxx  
AVERAGE           = aa.a**

**STD. DEV.         = dd.dd  
COV               = c.ccc**

**MAXIMUM           = mm.m  
MINIMUM           = nn.n**

2. If there are no valid samples stored, the meter will display **No Valid Samples Stored** and then return to the normal mode.

## TO RECALL A STORED READING

1. Press the **Select** key followed by the “up” arrow key once. The meter will display **Memory Recall?** (Press **ENTER**).
2. Press **ENTER**. The meter will display **Total Samples Stored xxx** followed by **Recall All?** (Press **ENTER**).
3. Press **ENTER**. The meter will start displaying all stored readings in ascending order:

**SAMPLE # - xxx  
READING – yy.y**

To stop recall at any time press **ENTER**. The meter will display **Stop Recall?** (press **ENTER**). Press the **ENTER** key within 2 seconds to stop the recall. The meter will return to the normal mode.

4. If the “up” arrow key is pressed instead of **ENTER** in step 3, the meter will display **Recall First?** (Press **ENTER**). Press **ENTER** to start recalling one reading only from the first reading stored or press the “up” arrow key to go to step 5. The meter will display the first reading as:

**SAMPLE # - 1**  
**READING – yy.y** followed by:  
**Recall More?**  
**(Press ENTER)**

Press **ENTER** to recall the second reading stored and so on. Do not press the **ENTER** key for 2 seconds to return to normal mode.

5. If the **ENTER** key is not pressed in step 4 the meter will display:

**Recall Last?**  
**(Press ENTER)**

Press **ENTER** to start recalling from the last reading stored.

### **TO ERASE A STORED READING(S)**

1. Press **SELECT** followed by the “up” arrow key twice. The meter will display **Erase Memory?** (Press **ENTER**).
2. Press **ENTER**. The meter will display **Total Samples Stored – xxx** followed by **Erase All?** (Press **ENTER**). Press **ENTER** to erase all stored readings or “up” arrow to go the next selection (step 3).
3. If the “up” arrow key is pressed in the step 2 above, the meter will display **Erase Last?** (Press **ENTER**). Press **ENTER** to erase one reading only (the last one). Or, press the “up” arrow key to go to the next selection (step 4). The meter will display **Erase More?** (Press **ENTER**). Press **ENTER** to erase the next reading (second from the last). Continue the procedure to erase additional readings.
4. If the **ENTER** key is not pressed in step 3, the meter will display **Erase First?** (Press **ENTER**). Press **ENTER** to start erasing single readings from the first reading stored.

### **TO RESET THE METER**

Use this function to reset the meter to its nominal (default) settings; 70°F, Douglas Fir, 2-pin electrode (w/insulated pins).

1. **CAUTION!!! THIS FUNCTION ERASES ALL STORED READINGS!**
2. Press **SELECT** followed by the “up” arrow key three times. The meter will display **Reset Meter?**
3. Press **ENTER**, the meter will display **Meter Is Reset**.

## TO CHECK BATTERY VOLTAGE

1. Press **SELECT** followed by the “up” arrow key four times.
2. Press **ENTER** when the meter displays **Show Voltage?** (Press **ENTER**).
3. The meter will display **Battery Voltage xx.xv.**

### Notes:

- A. Use only a 9-volt alkaline battery.
- B. The meter displays <BAT> when the voltage falls below 7.0 volts. The battery should be replaced at this time. Below 5.8 volts, the meter displays **Please Change Battery** and then shuts itself off automatically.

## CARE OF YOUR METER

- Store your meter in a clean, dry place. The protective carrying case provided is an ideal storage place when the meter is not in use.
- Change the 9-Volt battery as needed. Continued use with a low battery may cause the meter to go out of calibration.
- Change contact pins as needed. Keep pin retainers hand tightened.
- Clean the meter and contact pins with any biodegradable cleaner. Use the cleaner sparingly and on external parts only. Keep cleaner out of the external connector.
- Remove the battery if the meter will not to be used for one month or longer

## SERVICE FOR YOUR METER

- Pack your meter securely. Enclose a purchase order or letter with a brief description of the problem.
- There is no need to call us for a return authorization number if you are within the U.S. Customers outside the U.S. must contact us for more specific instructions prior to returning a meter.
- Include your name, address, daytime phone and fax numbers or e-mail address. If you believe the meter is under warranty, please provide the original sales slip or invoice.

- Ship via UPS, Express Mail, Priority Mail or any overnight courier who provides prompt service. Do not use standard parcel post.
- Insure your instrument for its full value and ship prepaid. We are not responsible for damage in transit.
- We do not accept COD shipments or cover any incoming freight or duty charges on returned merchandise
- Turnaround time on repairs is approximately two weeks.
- We will call you with an estimate if you specifically request one, or if we determine that the meter may be too costly to repair.
- Non-warranty repairs will be returned via UPS/COD unless you have already established other payment terms. There is no COD service outside the U.S. To pay by credit card, include the card number and expiration date with your repair. We accept Visa/MasterCard, American Express, and Discover.
- Warranty repairs will be returned at no charge if shipped within the U.S. via UPS Ground Service. Freight charges for expedited services (i.e., Federal Express, UPS/2 Day, UPS/1 Day, etc.) are the customer's responsibility and will be charged as per the above terms

## **WARRANTY**

Delmhorst Instrument Co., referred to hereafter as Delmhorst, guarantees its RDM-2 meter for one year from date of purchase and any optional electrodes against defects in material or workmanship for 90 days. If, within the warranty period of the RDM-2, you find any defect in material or workmanship return the meter following the instructions in the “**Service for Your Meter**” section. This limited warranty does not cover abuse, alteration, misuse, damage during shipment, improper service, unauthorized or unreasonable use of the meter or electrodes. This warranty does not cover batteries, pin assemblies, or pins. If the meter or any optional electrodes have been tampered with, the warranty shall be void. At our option we may replace or repair the meter.

Delmhorst shall not be liable for incidental or consequential damages for the breach of any express or implied warranty with respect to this product or its calibration. With proper care and maintenance the meter should stay in calibration; follow the instructions in the “**Care of Your Meter**” section.

Under no circumstances shall Delmhorst be liable for any incidental, indirect, special, or consequential damages of any type whatsoever, including, but not limited to, lost profits or downtime arising out of or related in any respect to its meters or electrodes and no other warranty, written, oral or implied applies. Delmhorst shall in no event be liable for any

breach of warranty or defect in this product that exceeds the amount of purchase of this product.

The express warranty set forth above constitutes the entire warranty with respect to Delmhorst meters and electrodes and no other warranty, written, oral, or implied applies. This warranty is personal to the customer purchasing the product and is not transferable.

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For more detailed information about using a wood moisture meter, call us toll-free at 1-800-222-0638. Ask for your free copy of Measuring Wood Moisture Content: Straight Talk from Delmhorst. Or find it on our web site at [www.delmhorst.com](http://www.delmhorst.com).

For over 50 years, Delmhorst has been the leading manufacturer of high-quality resistance moisture meters. Today we offer the innovative KIL-MO-TROL® in-kiln monitoring system and a complete line of portable moisture meters for woodworking/lumber, agriculture, construction and paper.

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## **SPECIES TABLE**

1. DOUGLAS FIR
2. SOUTHERN PINE
3. SPF
4. ASH, WHITE
5. BASSWOOD
6. BIRCH
7. CEDAR, INCENSE
8. CHERRY
9. CYPRESS
10. ELM, AMERICAN
11. FIR, RED
12. FIR, WHITE
13. GUM, BLACK
14. GUM, RED
15. HEMLOCK
16. HICKORY
17. LARCH
18. MAGNOLIA
19. MAHOGANY, AFRICAN
20. MAHOGANY, HONDURAS
21. MAHOGANY, PHILIPPINE
22. MAPLE, SUGAR
23. OAK, RED
24. OAK, WHITE
25. PINE, LONGLEAF
26. PINE, SHORTLEAF
27. PINE, SUGAR
28. PINE, WHITE
29. PONDEROSA PINE
30. POPLAR, YELLOW
31. REDWOOD
32. SPRUCE, SITKA
33. WALNUT, BLACK
34. 0-100 REFERENCE SCALE

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