<u>TechCheck</u>

MOISTURE METER

<u>Owner's Manual</u>

<u>Version 1.1</u>

For TechCheck Meters starting with Serial #11176

**Delmhorst Instrument Co.
Rev 2
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GENERAL DESCRIPTION & FEATURES

Thank you for your purchase of Delmhorst Instrument Co's newly designed **TechCheck** handheld moisture meter. The **TechCheck** offers the latest in features and functionality and is intuitive and easy to operate. We recommend that you read the following pages in detail to take full advantage of all that the **TechCheck** has to offer.

Outstanding Features:

- **Pin mode**
    - o 6%-60% wood scale (Douglas Fir)

- **Scan Mode**
    - o 0-300 numerical reference scale

- **Outstanding Features:**

    - o Built in back-light makes reading in dark places a cinch
    - o Alarm lets you know when your pre-selected moisture threshold is reached
    - o Hold readings on-screen to make even the most demanding inspection more manageable
    - o Auto shutoff timer saves battery life
    - o Rugged construction ensures years of reliable use
    - o Sturdy plastic carrying case
    - o 9-V Battery
    - o 1 year warranty

OPERATING INSTRUCTIONS
-User Guide-

This guide provides step-by-step instructions on powering up, using and powering down the meter.

INSTALLING THE BATTERY:

The battery compartment is located on the underside of the case, at the bottom of the handle.

1. Open the battery compartment by sliding the lid back while pressing on the release indent.
2. Ensure correct polarity, and push the battery in flush with the bottom board until the connectors snap together on both sides.
3. Replace the battery compartment lid.

LOW BATTERY:

The meter features a battery status monitor, designed to warn the user as well as protect measurement accuracy from impending battery failure conditions. The battery warning is triggered by either continuous or temporary low voltage conditions. Visible (a battery icon on the top right side of the display) and audible (buzzer warble) indicators accompany a battery warning. Once a permanent low battery condition is detected, all measurement functions are disabled. The battery should be replaced immediately. If the battery reaches critical levels, the meter will refuse to stay on at power-up. This gradual warning system is intended to provide the user advanced battery status notice and give ample time for replacement before operational limitations occur.

NOTE: *Current meter settings are not lost during battery replacement or low battery conditions.*

TO POWER THE METER ON:

To turn the meter on, press and hold the center HOLD (SELECT) KEY for approx. 2 seconds.
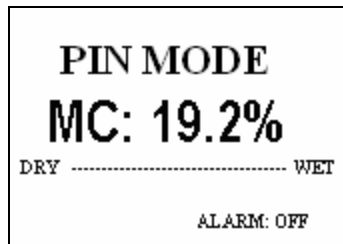
The meter will start in **PIN** mode.

METER USE

TO TAKE PIN READINGS:

1. Press the **PIN** (⇦) button to enter the pin mode.

2. The meter will display the **PIN** mode screen, as shown below:

3. Push the contact pins into material to be tested. Any Delmhorst electrode may also be used in **PIN** mode by simply attaching it to the connector next to the contact pins.

4. The unit will read %MC on a wood scale between 6% and 60%. At elevated wood temperatures, a reading above 30 percent is valid if the temperature-corrected reading

falls below 30 percent. Otherwise, these high readings provide relative comparisons, indicating that the material is taking on or losing moisture.

5. To hold a reading on-screen, press the **HOLD (SELECT) KEY**. Press the **HOLD (SELECT) KEY** again to return to measuring mode.

NOTE: The **TechCheck** is calibrated to give %MC readings on Douglas Fir. If you are taking readings on other species of wood, refer to the species correction chart found on pages 14-15.

TO SET THE ALARM IN PIN MODE:

1. To access alarm settings, press the **ALARM KEY** three times.

2. **The default status of the alarm is "OFF**." Press the **HOLD (SELECT)** key to turn it on.

```
ALARM:       OFF

DONE
```
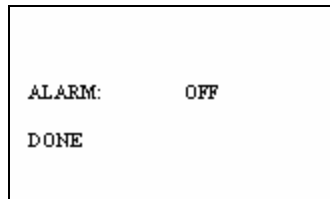
3. After the alarm is turned on, use the **SCAN** (⇨) key to increase the alarm value, and the **PIN** (⇦) key to decrease alarm value.

4. After you have selected the alarm value, use the **LIGHT** (⇩) key to highlight **DONE.** Press the center **HOLD (SELECT)** key to return to **PIN** mode.

5. The chosen alarm value will be displayed on the **PIN** mode screen and an audible alarm will sound if that value is reached.

Note: Default alarm setting for PIN mode is 15%.

TO TAKE SCAN READINGS:

1. Press the **SCAN** (⇨) button to enter scan mode.

2. The meter will display the **SCAN** mode screen, as shown below:

```
     SCAN MODE
        142
DRY -----------------------------------WET
                       ALARM: OFF
```
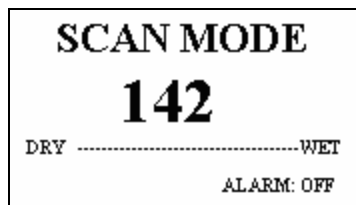
3. **You may begin taking readings** by firmly pressing the back of the meter onto the material to be tested. This will display a relative reading that ranges between 0 and 300.

4. To hold a reading on-screen, press the **HOLD (SELECT) KEY**. Press the **HOLD (SELECT) KEY** again to return to measuring mode.

NOTE: The **SCAN** mode will give relative readings only, not %MC. The numbers displayed represent the relative dryness or wetness of the material on a scale of 0 to 300. In order to accurately interpret your readings, first establish a baseline reading by taking a reading in an area you know to be unaffected or dry, then take a reading in the affected or wet area and compare the two readings.

TO SET THE ALARM IN SCAN MODE:

1. To access alarm settings, press the **ALARM KEY** three times.

2. **The default status of the alarm is "OFF**." Press the **HOLD (SELECT) KEY** to turn it on.

```
ALARM:      OFF

DONE
```
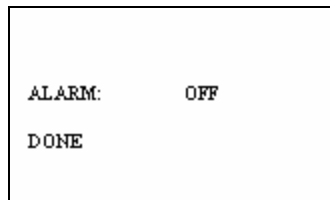
3. After the alarm is turned on, use the **SCAN** (⇨) key to increase the alarm value, and the **PIN** (⇦) key to decrease alarm value.

4. After you have selected the alarm value, use the **LIGHT** (⇩) key to highlight **DONE.** Press the center **HOLD (SELECT) KEY** to return to **SCAN** mode.

5. The chosen alarm value will be displayed on the **SCAN** mode screen and an audible alarm will sound if that value is reached.

Note: Default alarm setting for SCAN mode is 300.

TAKING A READING – PRACTICAL APPLICATIONS

The following application notes are intended for use with the meter in PIN MODE except where otherwise indicated.

TESTING WOOD:

The contact pins provided are best for materials up to 6/4. On materials over 6/4 or for hardwoods over 4/4 we recommend using a remote probe such as the 26-ES ram-type electrode. Mount the 26-ES directly to the external connector. **To take a reading**, align the contact pins parallel to the grain and push them to their full penetration into the wood, if possible. Insulated pins read only at the tip and can be driven to the desired depth.

PAINT FAILURE AND MOISTURE

Moisture is by far the most frequent cause of paint failure. The key to preventing paint failure is to insure that moisture is not absorbed through the wood to the back of the paint film. So, in order to insure quality paint jobs, wood must remain dry after the application of paint.

Outdoor wood can be safely painted without danger of peeling if the %MC is 15% or less. In drier climates, the maximum reading should be 10% to 11%. Indoor wood should be between 7% and 8% prior to painting.
The following conditions may cause high moisture content in wood:

⇒ Leaky gutters and down spouts
⇒ Leaky pipes or condensation on cold water lines in attic or hollow walls
⇒ Faulty flashing around windows, doors and where porch and dormer roofs meet sidings
⇒ End-grain wood that is not sealed with paint at all joints around windows, corners, and butt joints
⇒ Porch columns that do not have good drainage and ventilation where they rest on porch floors
⇒ Siding or any other wood that is in contact with the ground may absorb moisture
⇒ Siding and shingles without sufficient lap so that water is forced up through cracks by wind pressure
⇒ Ice dams
⇒ Condensation of vapor within hollow walls

EIFS (Exterior Insulation & Finish Systems)

Moisture intrusion problems in EIFS (also known as synthetic stucco) stem from leaking window frames, improper use of or lack of sealant, and faulty installation of flashing.

If you suspect a problem take a visual inspection. Look for gaps around windows, doors, air conditioning units, light fixtures, hose bibs, dryer vents and other areas of potential penetration. Also look for visible signs of water damage. If you feel a problem exists, use the **21-E electrode**. This electrode uses the **608 - (4") insulated pins or 608/001 (7") insulated pins.**

Procedure:

⇒ **Drill two 1/4" holes** about ¾" apart at an upward 45° angle.

⇒ **Push the 21-E Electrode into the holes** through the polystyrene and into the substrate and read the moisture content on the meter scale. When used on materials other than wood, the

meter's **PIN** mode will give relative readings only, not %MC. The numbers displayed represent the relative dryness or wetness of the material on a scale of 5 to 60. In order to accurately interpret your readings, first establish a baseline reading by taking a reading in an area you know to be unaffected, then take a reading in the affected area and compare the two readings.

TESTING CONCRETE SLABS FOR FLOORING APPLICATIONS

Moisture meters are an effective tool to check moisture in concrete. They can tell you where there may be excess moisture and help determine if you need to conduct further testing.

It is important to test both the surface and mid-section of the slab, especially if the slab is on or below grade.   This will help determine if there is continuous moisture migration toward the surface. If this condition exists, the moisture movement may be so slow that once it reaches the surface, moisture evaporates and causes a "dry" reading when a surface test is made.

However, if a sub-surface test is made, the meter may read "wet" indicating the presence of moisture. When the slab is covered and the upward movement of moisture continues, moisture will move into a hygroscopic (wood) floor, or build-up pressure under a non-breathing synthetic floor, causing delamination.

Taking a surface reading:

USING PIN MODE

➢ **Drive two hardened-steel masonry nails** about 3/4" apart into the finish coat of concrete floor. Drive them about 1/8" deep so they make firm contact with the concrete and do not move when touched.

➢ **Touch the nails** with the contact pins. Remember that when used on materials other than wood, the meter's **PIN** mode will give relative readings only. Establish a baseline reading by taking a reading in an area you know to be unaffected, then take a reading in the affected area and compare the two readings.

USING SCAN MODE

➢ First establish a benchmark. Take readings in areas that you know are dry, or acceptable.

➢ Take readings on areas that are wet. These "dry to wet" readings can be used as reference points against which subsequent readings are compared. Understanding the meter's behavior on a particular material, along with these comparative readings, your experience, and visual clues will all help determine the overall condition. All readings should be evaluated in the light of factors such as type of paint, type of construction, and climatic conditions.

Subsurface test:

➢ **Drill two 1/4" holes,** 3/4" apart and 1/2" to 2" deep.

➢ **Drive the masonry nails** into the bottom of the holes and make the tests as described above. Nails must not touch sides of drilled holes.

If the meter still indicates a "dry" condition, the floor is ready for covering. Tests should be made at several points, especially when the slab is thick (4" or more) and air circulation is poor. Make tests only in newly drilled holes.

When evaluating a slab for readiness, always consider its age, thickness, whether the slab is on grade or suspended, whether a vapor barrier is present and the drainage condition of the ground.

TESTING INSULATION:

To take a reading, attach a 21-E electrode with 4" insulated contact pins to the meter. Push the contact pins through the Sheetrock® into the insulation behind it. Remember that when used on materials other than wood, the meter's **PIN** mode will give relative readings only. Establish a baseline reading by taking a reading in an area you know to be unaffected, then take a reading in the affected area and compare the two readings.

TESTING DRYWALL

To take a reading, firmly press the back of the meter onto the material to be tested while in **SCAN** mode. This will display a relative reading that ranges between 0 and 300. Remember to establish a baseline reading by taking a reading in an area you know to be unaffected, then take a reading in the affected area and compare the two readings.

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. If the meter has been left in a hot or cold environment overnight or for an extended period, the calibration of the pinless mode may be adversely affected. Under these conditions, allow the meter to acclimate to the temperature conditions in which it will be used for minimum 1-2 hours, or as long as possible.

➢ 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

➢ **Before sending in your meter we recommend you give one of our trained technicians a call. Many times troubleshooting can be taken care of over the phone. Call us at 877-DELMHORST.**

➢ 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 GROUND unless another return shipping method is specified. To pay by credit card, we will contact you for credit card information. We accept Visa/MasterCard, and American Express.

➢ 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 the TechCheck 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 Model TechCheck, you find any defect in material or workmanship, return the meter following the instructions in the "**Service for Your Meter"** section. This 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.

DELMHORST
INSTRUMENT CO.
WHEN ACCURACY IS THE POINT.
Delmhorst Instrument Co.
51 Indian Lane East
Towaco NJ 07082
877-DELMHORST
www.delmhorst.com
e-mail - info@delmhorst.com

For 60 years Delmhorst has been the leading manufacturer of high quality moisture meters and thermo-hygrometers. We also offer a wide range of meters for a variety of applications including woodworking/lumber, agriculture, construction, paper, restoration, IAQ and flooring.

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SPECIES CORRECTION TABLE

SPECIES	METER READINGS WITH **NON-INSULATED** PINS										
SPECIES	7	8	9	10	12	14	16	18	20	22	24
ALDER	8	9	10	11	13	15	17.5	19.5	21.5	24	27
APITONG	8	9	10	11	13	15	17	20	22	24	27
ASPEN	7	8	9	10	11.5	13	15	16.5	18	20	21
ASH, WHITE	6.5	7.5	8	9	11	13	14.5	16	18	19.5	21
BASSWOOD	7	8	8	9	10.5	13	15	17	19	20.5	22
BIRCH	8	9	10	11	13	15	17	19	21.5	23.5	25.5
CEDAR, EAST. RED	8	9.5	10.5	12	14	17	19	21	23	25	26
CEDAR, INCENSE	7	8	9.5	10.5	12.5	15	17	19	21	23	25
CHERRY	8	9	10	11	13.5	15.5	18	20	22	24	26
COTTONWOOD	6	7.5	8.5	9.5	12	14	15	17	19.5	21	23
CYPRESS	7	8	9	10	12	14	16	18	19.5	21.5	23.5
ELM, AMERICAN	7	7.5	8	8.5	10	11.5	13	15	16	18	19
FIR, DOUGLAS	7	8	9	10	12	14	16	18	20	22	24
FIR,RED	7	8	9	10	12.5	15	17	19	21	23	25
FIR, WHITE	8	9	9.5	10.5	12.5	15	17	19	21	23	25
GUM, BLACK	7.5	9	10	11	13	15	16	18	19	20.5	22
GUM, RED	7	8	9	10	12.5	14.5	16.5	19	20.5	22.5	24
HEMLOCK, WESTERN	7	8	9	10.5	13	15	17	19	20.5	22	23.5
HACKBERRY	7	8.5	9	9.5	12	13	15	17	18.5	20	22
HICKORY	8	8.5	9	10	11	12.5	14	15.5	17	19	20.5
KERUING	8	9	10	11	13	15	17	20	22	24	27
LARCH	7.5	9	10	11	13	15	17	19	21	23	25.5
MAGNOLIA	7.5	9	10	11.5	14	16	17.5	19	21	22.5	24.5
MAHOGANY, AFRICAN (ALSO KHAYA)	8	9.5	10.5	12	15	17	19.5	22	24	26	28
MAHOGANY, HOND.	7	8	9	10.5	12.5	14.5	16	18	19.5	21.5	22.5
MAHOGANY, PHIL.	6	7	7.5	8	9.5	11	13	14	15.5	17	18
MAPLE, HARD/SOFT	8	9	9.5	10	12	14	16	18	20	22.5	25
MERANTI, DARK RED	8.5	9.5	10.5	11.5	12.5	16	18	20.5	22.5	24.5	26.5
OAK, RED	7	8	9	10	12	14	16	18	20	22	24
OAK, WHITE	7	8	8.5	9.5	11.5	13.5	15	17	18.5	20	22
PECAN	6.5	8	9.5	11	12.5	14	16	17.5	19	22	24
PINE, LONGLEAF	8	8.5	10	11	13	15.5	17.5	19.5	21	23	25
PINE, PONDEROSA	7.5	8.5	10	11	13.5	15.5	17.5	19.5	21	23	25.5
PINE, SHORTLEAF	7.5	9	10	11	13	15.5	17.5	19.5	21.5	23.5	25
PINE, SO. YELLOW*	8	9.5	10.5	12	14.5	16.5	19	21	23	25	28
PINE, SUGAR	7	8	9	10	12	15	17	19	21	23	25
PINE, WHITE	7	8	9	10	13	15	17	19	21	23	25.5

	METER READINGS WITH **NON-INSULATED** PINS										
SPECIES	7	8	9	10	12	14	16	18	20	22	24
POPLAR, YELLOW	8	8.5	10	11	13	15.5	17.5	19.5	22	24	26
RAMIN	7	8	9	10	11	13	15	16	18	20	21
SPECIES	7	8	9	10	12	14	16	18	20	22	24
RADIATA PINE	10	11	11	12	14	16	18	20	23	25	27
REDWOOD	7	8	9	10	12	13.5	15	17	19	22	24
SPRUCE, SITKA	7	8	9	10	12.5	14.5	17	19	21	23.5	26
SPF**	9	10	11.5	13	15.5	18	20.5	23	25	28	30
SPF/COFI	8	9	10	11	13	15	17	19	21	23	25
TEAK	7	8	8.5	9	11	12	14	15	17	18.5	20
VIROLA	6.5	7	8	9	11	12.5	14	16	18	18.5	20.5
WALNUT, BLACK	7.5	8.5	9.5	10.5	12.5	14.5	16	18	20	22	23.5

The species correction values shown in this chart have been rounded for easy reference.

*Meter readings taken with 26-E 2-pin electrode. Do not apply 2-pin correction.

**SPF correction based on 2-pin 26-E reading with insulated pins. It is based on USDA/Forintek data and can be used for the following species:

Lodgepole Pine
Alpine Fir