

Accuscan™

owners manual



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DELMHORST ACCUSCAN



ACCUSCAN FEATURES

- ▶ Designed to check moisture levels in wood, concrete, EIFS, sheetrock and other materials
- ▶ Ideal for the Flooring Professional, Restoration Contractor, IAQ and Mold Remediation Specialist, Woodworker, Home Inspector, and General Contractor
- ▶ Analog readout
- ▶ Measures %MC in wood over the range of 6%–40%
- ▶ 0–100 color-coded reference scale for non-wood building materials
- ▶ Built-in meter check
- ▶ Includes (1) 9-volt battery
- ▶ Includes a sturdy carrying case
- ▶ One-year warranty
- ▶ Over 56 years of proven quality, accuracy and service

INTRODUCTION

Accuscan is a multi-purpose meter, which can be used in many applications, such as flooring, water restoration/IAQ, woodworking and home inspection. It is a fast, effective way to identify moisture problems and determine if further action must be taken.

Accuscan is a capacitance-type moisture meter, using the relationship between the moisture content and the dielectric properties of the material under test. When the meter is placed on wood or other building material, an electro-magnetic field penetrates approximately 3/4" into the material. The MC nearest to the sensor has the greatest effect on the reading. The indicated reading represents a biased average MC without taking into account the moisture distribution.

If you require a more complete evaluation of moisture conditions, or need to penetrate through flooring, check behind sheetrock, or test lumber over 1-1/2" thick, we recommend using Accuscan in conjunction with one of our Delmhorst pin-type moisture meters.

Two Scales

Wood Scale: 6%-40% moisture content range for wood (Douglas Fir). Use when testing wood materials, such as flooring, trim, exterior siding.

Reference Scale: 0-100 reference scale for **non-wood** materials. **The numbers on this scale are relative or qualitative indications of moisture levels – not % moisture content.** Use when testing building materials such as plaster, sheetrock, concrete, insulation, EIFS, etc. Readings in the low end of the scale usually indicate a drier condition; readings in the upper end of the scale usually indicate a higher moisture level in the material.

To establish a benchmark for the material you are measuring, first take readings in areas that you know are dry, or acceptable. Then take readings on areas that are wet. These "dry to wet" readings, regardless of within which colored area they fall on the meter's scale, should be used as the reference points against which subsequent readings are compared.

One should not expect that the reference scales for meters of different makes and types (resistance/capacitance) will read alike on the same material. The benchmark may be different from meter to meter because a given meter's response depends on the material used for calibration and on the meter's range.

BEFORE YOU BEGIN

Button Functions

- ➊ **STAY ON BUTTON** - Turns the meter "on." Also keeps the meter "on" continuously if pressed and held.
- ➋ **REFERENCE SCALE BUTTON** - Selects reference scale and turns the meter "on." Also performs an auto calibration. The LED blinks **red** when this button is pressed.
- ➌ **CHECK BUTTON** - Verifies that the meter is functioning properly and that the battery voltage is sufficient.
- ➍ **WOOD SCALE BUTTON** - Selects wood scale and turns the meter "on." Also performs an auto calibration. The LED blinks **green** when this button is pressed.

INSTALLING/REPLACING A BATTERY

Delmhorst Instrument Co. ships ACCUSCAN with a 9-V battery stored in the carrying case. When installing the battery, the LED will go through the following sequence:

- ▶ Green light will flash 1 time, then the red light will flash 1 time, followed by the green light 2 times again.
- ▶ After this flashing sequence is complete, the unit is operational and ready to use.

To replace a low battery

- ▶ Remove the battery door and unsnap the battery from the clip.
- ▶ Wait 20-30 seconds before installing the new battery.
- ▶ Insert the new battery. The LED will follow the same blinking sequence as noted above.

METER/BATTERY CHECK

- ▶ **Hold the meter in the air** and away from any object. Your fingers must not make contact with the sensor plate while performing this function.
- ▶ **Press and hold** the check button (3) until the green light stops blinking.
 - ▶ The battery voltage is sufficient if the needle pointer moves to within the green band (20%) on the wood scale. Any reading within this green band on the dial is acceptable. Make sure the sensor pad is not making contact with anything when checking the meter.
 - ▶ If the needle does not read "20" it is likely an indication of a low battery. If this occurs, change the battery (9-Volt) immediately. Continued use with a low battery may cause the meter to go out of calibration. If you have a fresh battery and the instrument still does not indicate a proper reading, return it to DELMHORST for service. See "**Service for Your Meter**" section for details.

***A low battery indication is also provided during the read cycle. If, while taking a reading, the LED blinks, the battery voltage is below 6%.

TAKING A READING

- ▶ **Select the appropriate scale** by pressing and releasing either the Reference Scale or the Wood Scale button. **Hold the meter in the air and away from any object when making the scale selection.**
- ▶ **The meter will turn on**, and the LED will flash several times. This action also performs an auto calibration, which ensures that meter readings will be stable, repeatable, and virtually unaffected by environmental conditions.
- ▶ **When the LED stops blinking**, the unit is ready to take a reading.
- ▶ **Place the meter** on the surface to be tested.
- ▶ **Hold the outer sides of the unit** and apply slight forward pressure on the meter to minimize the amount of air between the sensor plate and the material being tested.
- ▶ **If you want to read continuously**, press and HOLD the Stay On button (1) to keep the unit ON. If you release the Stay On button, the meter will turn off after 2 minutes 30 seconds.
- ▶ **To turn the meter "ON" after 2 minutes 30 seconds**, hold it in the air and away from any object. Press the Stay On button or appropriate scale button again.

APPLICATION NOTES

USING THE 6-40% WOOD SCALE

Testing Wood Flooring

- ▶ Before installing a floor, make sure that the moisture content of the sub floor and the flooring are within 2%-4% of each other. Most flooring manufacturers also recommend that the installer allow the floor to acclimate in its environment for several days before installation. During this period, check both the floor and the sub floor to ensure that moisture levels of both materials remain stable.

Paint Failure and Moisture

- ▶ Moisture is by far the most frequent cause of paint failure. The key to preventing paint failure is to make certain 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% to 8% prior to painting.

Helpful Hints When Using ACCUSCAN to Measure Wood

- ▶ The entire sensor plate should be in contact with the surface of the board. The sensor plate measures 2-1/2" x 3-1/2".
- ▶ Readings obtained with Accuscan, like pinless moisture meters in general, are affected by the amount of pressure the sensor plate makes with the material under test. Therefore, it is critical to apply and maintain uniform, forward pressure to the meter when taking readings.
- ▶ The sensor's signal penetrates up to 3/4". When measuring thinner material, keep in mind that the material underneath the wood may influence the readings. If possible, place a piece of glass, rubber or styrofoam under the sample to avoid false readings.
- ▶ The meter works best on smooth lumber. Rough, uneven or cupped boards yield low readings due to the air pockets between the sensor plate and the surface. Disregard readings on knots or splits.

- ▶ Surface moisture increases the readings. Depending on the application, we recommend using a Delmhorst pin meter with insulated pins to determine if a normal gradient (wet core to drier outer surface) is present or if surface moisture has just soaked into the board.

USING THE 0-100 REFERENCE SCALE: read the section on page 3 again before proceeding

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.
- ▶ For best results, we recommend using ACCUSCAN in conjunction with a pin type meter for concrete flooring applications. ACCUSCAN will allow you to scan a large area quickly and easily, while the pin type meter will allow you to conduct a sub surface test.
- ▶ If you have determined that you must use a pin-type moisture meter, 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.
- ▶ If the meter still indicates "dry" reading in the green section of the scale, the floor is ready for covering. Perform tests in several areas, especially when the slab is thick and air circulation is poor.
- ▶ If more testing is required, the calcium chloride test, which measures the moisture vapor emission rate of concrete, is recommended. The National Wood Flooring Association offers the following guidelines when evaluating the results of the calcium chloride test***:

Results	Indicate
0-3 lbs.	Dry
Over 3 lbs.	Moisture barrier required
Over 7 lbs.	Too wet

Key Factors to Consider

- ▶ **The age of the slab.** National Wood Flooring Association guidelines specify to wait at least 30 days after the slab is laid before checking moisture content. ***
- ▶ **Color of the concrete.** Good healthy concrete should be almost sugar-white.
- ▶ Concrete that is gray, brown, tan, or off-white may have contaminants, admixtures, or problems that may effect the flooring installation.
- ▶ **Is the slab on grade or suspended?** If the slab is on grade, is there an effective vapor barrier under the slab?
- ▶ **How thick is the slab?**
- ▶ **What is the drainage condition of the ground?**
- ▶ **History of other structures in the area**

***Taken from Section V Appendix AA "Moisture Testing Procedures for Concrete Slabs" – NWFA

Using ACCUSCAN in a Water Restoration or Mold Remediation Job

- ▶ ACCUSCAN is a useful tool in identifying moisture in walls, ceilings and floors in a water restoration or mold remediation.
- ▶ In order to establish pre-loss conditions, find an area of the building that was not damaged and take several readings on various materials. This will provide you with a target moisture level to reach when drying damaged areas.
- ▶ Take several readings on each wall. Pay special attention near the base, around doorjamb, electrical and plumbing fixtures, and other places where water may have entered.
- ▶ Use the meter continuously during the drying process to monitor drying progress.

Testing EIFS (Exterior Insulation & Finish Systems)

- ▶ Moisture intrusion problems in EIFS (also known as synthetic stucco) stem from leaking window and door 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 believe a problem exists, use ACCUSCAN as a quick scanning method to determine the general location of the moisture. Then use a pin type meter to better identify exact problem areas and depth of moisture intrusion.

Helpful Hints When Using ACCUSCAN to Measure Non-Wood Building Materials

- ▶ The 0-100 "reference scale" is for **relative** wet/dry indications only. These numbers do not represent %MC.
- ▶ The meter works best on smooth surfaces that are free of loose debris and dust.
- ▶ Readings in concrete can be affected by rebar and aggregate composition.
- ▶ The entire sensor plate should be in contact with the surface of the board. The sensor plate measures 2-1/2" x 3-1/2".
- ▶ Readings obtained with ACCUSCAN, like pinless moisture meters in general, are affected by the amount of pressure the sensor plate makes with the material under test. Therefore, it is critical to apply and maintain uniform, forward pressure to the meter when taking readings.
- ▶ The sensor's signal penetrates up to 3/4". Keep in mind that the material underneath or behind the material being tested may influence the readings.

CARE FOR YOUR METER

To keep your meter in good working order:

- ▶ Store 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.
- ▶ Clean the meter with any biodegradable cleaner. Use the cleaner sparingly and on external parts only.
- ▶ 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, 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.

ACCREDITATIONS

ACCUSCAN complies with:

FCC

Part 18 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

CANADIAN

This ISM Device complies with Canadian ICES-001.

Cet appareil ISM est conforme a la norme NMB-001 du Canada.

CE

Complies with relevant directives. Please contact Delmhorst Instrument Co. if you require a formal Declaration of Conformity.

WARRANTY

Delmhorst Instrument Co., referred to hereafter as Delmhorst, guarantees its ACCUSCAN meter for one year from date of purchase. If, within the warranty period of the ACCUSCAN, 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. If the meter has 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.

For over 56 years, Delmhorst has been the leading manufacturer of high-quality resistance moisture meters. Today we offer a complete line of portable moisture meters for a variety of applications including woodworking/lumber, agriculture, construction and paper.



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