

WAGNER MODEL L622

"DIGITAL RECORDING"

HAND-HELD MOISTURE METER

OWNER'S MANUAL



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REV: Q

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Wagner Model L622 “Digital Recording” Moisture Meter Owner’s Manual

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Technical Support

Should you require support, please consult your printed documentation to resolve your problem. If you are still experiencing difficulty, you may contact a Wagner Technical Service representative during normal business hours—7:30 a.m. to 4:00 p.m. Pacific Standard Time, Monday through Friday.

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FCC Compliance Statement

This equipment has been tested and found to comply within the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installations.

This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Move the equipment away from the receiver
- Plug the equipment into an outlet on a circuit different from that to which the receiver powered
- If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

CAUTION: Only equipment certified to comply with Class B (computer input/output devices, terminals, printers, etc.) should be attached to this equipment.

Finally, any changes or modifications to the equipment by the user not expressly approved by the grantee or manufacturer could void the users authority to operate such equipment.

This device complies with Part 15 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 Department of Communications Compliance Statement

This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations.

Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

L622 Digital Recording Moisture Meter

Wagner introduces the L622 Digital Recording Hand-Held Moisture Meter. This new model replaces the proven L612 model instrument, providing improved moisture measurement accuracy in the 15%+ moisture content range. As with the L612 model, the L622 utilizes Wagner's Intellisense™ technology to truly read the moisture IN the wood, not ON the wood.

- Stores and displays up to 33 user-selected species adjustments by name.
- Stores up to 5000 separate moisture readings.
- Stores readings in up to 200 groups.
- Built-in real time clock/calendar.
- Send data to a computer for advanced analysis using supplied Stat-Pak software.

Using non-volatile memory, stored readings are retained even when the batteries are removed. A backlit LCD display features a 2-line, 32-character display. Function buttons and scroll arrows operate a menu system that guides the user step by step through the selecting, storing and reporting process. The meter has auto-shut-off to extend battery life.

Like all Wagner Hand-Held Moisture Meters, moisture readings are virtually unaffected by wood temperature in the normal operating range outside of a kiln environment. Contact Wagner technical support for guidelines when wood is below freezing.

L622 Specifications

Physical Size (in):	L 8.5 x W 4 x H 3.75
(mm)	L 216 x W 102 x H 95
Scanning Area (in):	2.5 x 2.5
(mm)	63.5 x 63.5
Scanning Depth (in):	1.0 in. (25.4 mm)
Weight:	18 oz. (510 g)
Power:	4 AA Alkaline Batteries
Battery Life:	~50 hours of continual use. ~9 hours of continual use with Backlight ON.
Real Time Clock:	Records both date and time
Auto Power Shut Down:	After 1 minute of non-use.
Moisture Measurement Range:	5 to 30% (dependent on species setting)
Specify Gravity Range:	0.30 to 0.75
Meter Operating Temperature:	30° to 120°F
Comm Port:	RS-232 Serial Interface
Probe Port:	L712/L722 Sensor Probe Interface
Patent Numbers:	5,486,815 and 5,621,391

Getting Started

This section informs you about

- Turning on the L622
- Moisture readings
- Storing a reading
- What is a group
- Viewing statistics
- The menu system
- Changing species

Before you begin, make sure your L622 has a fresh set of batteries.

Turning on the L622

Turn on the L622 by pressing the STORE button for one second. The display will momentarily show the model, software version, and revision numbers. Your L622 is now ready to take moisture readings.

Moisture readings

Take moisture readings by pressing the bottom of the L622 to the wood surface. The first line of the display shows the species for which the L622 is calibrated. The second line shows the reading in percent moisture content.

Storing a reading

While pressing the bottom of the L622 to the wood surface at the location of interest, press the STORE button to save that reading in a group.

What is a group

A group is a set of readings that belong together. You determine which readings belong together. Switch to another group by first pressing the GROUP button. Press the ARROW buttons to select a different number. Press the STORE button to activate the selection. The active group number is shown in the bottom right corner of the display.

Viewing statistics

Statistical values such as mean, standard deviation, highest reading, and lowest reading are calculated on individual groups. They may be accessed for viewing by using the menu system.

The menu system

For example, to view the mean and standard deviation values for the active group, press the MENU button to activate the main menu. Press the ARROW button to scroll through the menu until the menu item Mean/Std is displayed. Press the STORE button to activate the menu item.

Changing species

If the L622 is not set to the species you are measuring, change it using the menu system. See the section "Factory Species List" for a complete list of available species. If your species is not listed, you may customize a species as outlined in the section "Changing Species."


	Turning on the L622	Readings Mode	Storing Readings												
Operation	<p>To turn on the L622, press the STORE button for one second. The display will briefly show the Model, Version, and Revision numbers.</p> <p>The L622 will turn off after 1 minute of inactivity. Inactivity means no change in moisture readings or buttons pressed.</p>	<p>The L622 takes continuous percent moisture content (%MC) readings and puts them on the display. When a reading is below 5%, the first line shows the current species and group field label. The second line shows the current reading and the active group number. When a reading is above 5%, the first line becomes a bar graph representing the current reading.</p>	<p>When storing a valid reading, the second line will display the message "Storing" along with the sample number.</p> <p>When attempting to store an invalid reading, the second line will display message "Too Low" along with the last sample number.</p>												
Display	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="2" style="text-align: center;">WAGNER L622</td> </tr> <tr> <td style="text-align: center;">V xx.xx</td> <td style="text-align: center;">R xx.xx</td> </tr> </table>	WAGNER L622		V xx.xx	R xx.xx	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Douglas Fir</td> <td style="text-align: center;">GRP</td> </tr> <tr> <td style="text-align: center;">.0 %</td> <td style="text-align: center;">0</td> </tr> </table>	Douglas Fir	GRP	.0 %	0	<table style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding-right: 20px;">Storing</td> <td>14 or</td> </tr> <tr> <td>Too Low</td> <td>13</td> </tr> </table>	Storing	14 or	Too Low	13
WAGNER L622															
V xx.xx	R xx.xx														
Douglas Fir	GRP														
.0 %	0														
Storing	14 or														
Too Low	13														
STORE	To turn the meter on, press the STORE button for one second.	Press the STORE button to store the current reading into the active group.													
GROUP		Press the GROUP button to activate the change group function.													
MENU		Press the MENU button to activate the main menu.													
ARROWS		To scroll Up and Down through the readings and options.													

	Changing Groups	Activating Main Menu	Main Menu Selection
Operation	<p>Press the GROUP button to activate the change group function.</p> <p>Use the ARROW buttons to select the desired group number.</p> <p>Press the STORE button to activate the change.</p> <p>The group number range is from 0 to 199.</p>	<p>Press the MENU button to activate the main menu.</p> <p>Press the ARROW buttons to scroll through the menu.</p> <p>Press the STORE button to activate the selected menu item.</p>	<p>Locale</p> <p>Battery</p> <p>Backlight</p> <p>Calibration</p> <p>Print</p> <p>Clear</p> <p>High/Low</p> <p>Mean/Std</p> <p>Species</p>
Display	<div style="border: 1px solid black; padding: 2px;"> <p>Group</p> <hr style="border: 1px solid black;"/> <p>1</p> </div>	<div style="border: 1px solid black; padding: 2px;"> <p>Menu</p> <hr style="border: 1px solid black;"/> <p>Locale</p> </div>	
STORE	Press the STORE button to save the change and return to the readings mode	Press the STORE button to activate the selected menu item.	
GROUP	Press the GROUP button to cancel the change and return to the readings mode	Press the GROUP button to return to the readings mode	
MENU	Press the MENU button to cancel the change and return to the readings mode	Press the MENU button to activate the selected menu item.	
ARROWS	Press the ARROW buttons to increment or decrement the group number.	Press the ARROW buttons to scroll through the menu.	

	Locale Menu	Locale Menu Selection	Changing Language
Operation	<p>Enter the main menu and activate the Locale item.</p> <p>Press the ARROW buttons to scroll through the Locale menu.</p> <p>Press the STORE button to activate the selected menu item.</p>	<p>Language</p> <p>Date</p> <p>Decimal</p>	<p>Enter the Locale menu and activate the Language item.</p> <p>Press the ARROW buttons to scroll through the Language menu. The languages available are dependent on your locale.</p> <p>Press the STORE button to activate the language for the meter text.</p>
Display	<div style="border: 1px solid black; padding: 2px;"> <p>Locale</p> <hr/> <p>Language</p> </div>		<div style="border: 1px solid black; padding: 2px;"> <p>Language</p> <hr/> <p>English</p> </div>
STORE	<p>Press the STORE button to activate the selected menu item.</p>		<p>Press the STORE button to activate the language for the meter text.</p>
GROUP	<p>Press the GROUP button to return to the readings mode.</p>		<p>Press the GROUP button to return to the readings mode.</p>
MENU	<p>Press the MENU button to activate the selected menu item.</p>		<p>Press the MENU button to activate the language for the meter text.</p>
ARROWS	<p>Press the ARROW buttons to scroll through the menu.</p>		<p>Press the ARROW buttons to scroll through the menu.</p>

	Changing Date Format	Date Menu Selection
Operation	<p>Enter the Locale menu and activate the Date item.</p> <p>Press the ARROW buttons to scroll through the Date menu.</p> <p>Press the STORE button to activate the selected menu item.</p>	<p>MM/DD/YY DD/MM/YY</p> <p>Selecting the MM/DD/YY item will format the date in the month/day/year order. Selecting the DD/MM/YY item will format the date in the day/month/year order.</p>
Display	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Date</div> <div style="border: 1px solid black; padding: 2px;">MM/DD/YY</div>	
STORE	Press the STORE button to activate the selected menu item.	
GROUP	Press the GROUP button to return to the readings mode.	
MENU	Press the MENU button to activate the selected menu item.	
ARROWS	Press the ARROW buttons to scroll through the menu.	

NOTE: Actual Date and Times are entered through Stat-Pak software.

	Changing Decimal Format	Decimal Menu Selection
Operation	<p>Enter the Locale menu and activate the Decimal item.</p> <p>Press the ARROW buttons to scroll through the Numbers menu.</p> <p>Press the STORE button to activate the selected menu item.</p>	<p>Period Comma</p> <p>Selecting the Period format will use the period '.' character as the decimal separator. Selecting the Comma format will use the comma ',' character as the decimal separator.</p>
Display		
STORE	Press the STORE button to activate the selected menu item.	
GROUP	Press the GROUP button to return to the readings mode.	
MENU	Press the MENU button to activate the selected menu item.	
ARROWS	Press the ARROW buttons to scroll through the menu.	

	Changing Species	Editing Specific Gravity	Editing Species Name												
Operation	<p>Enter the Main Menu and activate the Species item.</p> <p>Use the ARROW buttons to scroll through the species list (See the section "Factory Species List").</p> <p>Press the STORE button to activate the selected species.</p>	<p>Select the species to change by using the ARROW buttons.</p> <p>Enter the SG Edit mode through the Species item.</p> <p>Press the MENU button twice to activate and Edit the SG value.</p> <p>Use the ARROW buttons to change the SG number.</p> <p>Press the STORE button to save and activate changes.</p>	<p>Enter the Edit Name mode through the Species item and Edit SG mode.</p> <p>Press the MENU button again to edit the Name.</p> <p>Use the ARROW buttons to change the alpha character.</p> <p>Press the MENU button to move the edit cursor to the right.</p> <p>Press the STORE button to save and activate changes.</p>												
Display	<table border="1"> <tr> <td>Species</td> <td>SG</td> </tr> <tr> <td>Cherry,Black</td> <td>.50</td> </tr> </table>	Species	SG	Cherry,Black	.50	<table border="1"> <tr> <td>Edit</td> <td>SG</td> </tr> <tr> <td>Cherry,Black</td> <td>.52</td> </tr> </table>	Edit	SG	Cherry,Black	.52	<table border="1"> <tr> <td>Edit Name</td> <td></td> </tr> <tr> <td>Cherry,Black S</td> <td>.52</td> </tr> </table>	Edit Name		Cherry,Black S	.52
Species	SG														
Cherry,Black	.50														
Edit	SG														
Cherry,Black	.52														
Edit Name															
Cherry,Black S	.52														
STORE	Press the STORE button to activate the selected species.	Press the STORE button to save and activate changes.	Press the STORE button to save and activate changes.												
GROUP	Press the GROUP button to return to the readings mode.	Press the GROUP button to cancel changes and return to the readings mode.	Press the GROUP button to cancel changes and return to the readings mode.												
MENU	Press the MENU button to activate the Edit SG mode.	Press the MENU button to activate the Edit SG mode.	Press the MENU button to move the edit cursor one character to the right. That character will be cleared.												
ARROWS	Press the ARROW buttons to scroll through the species list.	Press the ARROW buttons to increment or decrement the SG number.	Press the ARROW buttons to cycle through the alphabet.												

	Mean/Std Statistics	High/Low Statistics												
Operation	<p>Enter the main menu and activate the Mean/Std item.</p> <p>Use the ARROW buttons to scroll through the group statistics. Only groups that contain readings will be shown.</p> <p>Press the STORE button to return to the readings mode.</p>	<p>Enter the main menu and activate the High/Low item.</p> <p>Use the ARROW buttons to scroll through the group statistics. Only groups that contain readings will be shown.</p> <p>Press the STORE button to return to the readings mode.</p>												
Display	<table border="1"> <thead> <tr> <th>Mean</th> <th>Std</th> <th>GRP</th> </tr> </thead> <tbody> <tr> <td>8.3</td> <td>4.7</td> <td>0</td> </tr> </tbody> </table>	Mean	Std	GRP	8.3	4.7	0	<table border="1"> <thead> <tr> <th>High</th> <th>Low</th> <th>GRP</th> </tr> </thead> <tbody> <tr> <td>11.0</td> <td>6.1</td> <td>1</td> </tr> </tbody> </table>	High	Low	GRP	11.0	6.1	1
Mean	Std	GRP												
8.3	4.7	0												
High	Low	GRP												
11.0	6.1	1												
STORE	Press the STORE button to return to the readings mode.	Press the STORE button to return to the readings mode.												
GROUP	Press the GROUP button to advance to the next valid group.	Press the GROUP button to advance to the next valid group.												
MENU	Press the MENU button to return to the readings mode.	Press the MENU button to return to the readings mode.												
ARROWS	Press the ARROW buttons to increment or decrement the group number.	Press the ARROW buttons to increment or decrement the group number.												

	Clear Menu	Clear Menu Selection
Operation	<p>Enter the main menu and activate the Clear menu.</p> <p>Press the ARROW buttons to scroll through the Clear menu.</p> <p>Press the STORE button to activate the selected item.</p>	<p>Group Readings All Groups</p>
Display	<div style="border: 1px solid black; padding: 2px;"> <p>Clear</p> <hr style="border: 1px solid black;"/> <p>Group</p> </div>	
STORE	Press the STORE button to activate the selected item.	
GROUP	Press the GROUP button to return to the readings mode.	
MENU	Press the MENU button to activate the selected item.	
ARROWS	Press the ARROW buttons to scroll through the menu.	

	Clear Group	Clear Readings	Clear All Groups								
Operation	<p>Enter the Clear menu and activate the Group item.</p> <p>Press the ARROW buttons to select the group to clear. Only groups that contain readings will be shown.</p> <p>Press the STORE button to clear the selected group.</p>	<p>Enter the Clear menu and activate the Readings item.</p> <p>Press the ARROW buttons to select the reading to clear.</p> <p>Press the STORE button to clear the selected reading.</p>	<p>Enter the Clear menu and activate the All Groups item.</p> <p>Press the STORE button to clear all groups.</p> <p>Press any other button to cancel operation and return to the readings mode.</p>								
Display	<table border="1"> <tr><td>Group</td></tr> <tr><td>0</td></tr> </table>	Group	0	<table border="1"> <tr><td>Reading</td><td>GRP</td></tr> <tr><td>17.6 %</td><td>10 21</td></tr> </table>	Reading	GRP	17.6 %	10 21	<table border="1"> <tr><td>All Groups</td></tr> <tr><td>Yes = STORE</td></tr> </table>	All Groups	Yes = STORE
Group											
0											
Reading	GRP										
17.6 %	10 21										
All Groups											
Yes = STORE											
STORE	Press the STORE button to clear the selected group.	Press the STORE button to clear the selected reading.	Press the STORE button to clear all groups.								
GROUP	Press the GROUP button to advance to the next valid group.	Press the GROUP button to advance to the next valid group.	Press the GROUP button to return to the readings mode.								
MENU	Press the MENU button to cancel and to return to the readings mode.	Press the MENU button to return to the readings mode.	Press the MENU button to return to the readings mode.								
ARROWS	Press the ARROW buttons to increment or decrement the group number.	Press the ARROW buttons to increment or decrement reading number.	Press the ARROW button to return to the readings mode.								

	Calibration		
Operation	Enter the main menu and activate the Calibration item.		
Display	<table border="1" style="margin: auto;"> <tr> <td style="text-align: center;">Calibration</td> </tr> <tr> <td style="text-align: center;">xx.x %</td> </tr> </table>	Calibration	xx.x %
Calibration			
xx.x %			
STORE	Press the STORE button to return to the readings mode.		
GROUP	Press the GROUP button to return to the readings mode.		
MENU	Press the MENU button to return to the readings mode.		
ARROWS	Press the ARROW button to return to the readings mode.		

Checking Calibration

Calibration is factory set. It may be checked by using a Wagner Calibration Verification Block (CVB) (P/N: 840-60130-003). Use only to verify L622 factory calibration is within tolerance limits. If calibration is out of tolerance, return L622 to factory or repair depot for re-calibration. Never adjust L622 to this device. Protect CVB from direct sunlight. Store the CVB in a cool dry place. Follow these steps for checking calibration.

1. Enter the Calibration verification mode using the MENU button.
2. Hold the L622 in mid-air so the bottom is several feet from any object. The correct reading for air is .0 %MC. If the reading is outside the range, -.2 to .2 %MC, the L622 is out of calibration.
3. Place the CVB, rubber feet down, on a metal surface: such as a file cabinet, a piece of sheet metal, etc.
4. Align the long axis of the L622 with the long axis of the CVB. Press the L622 sensor in the center of the CVB and observe the reading. The correct reading is 20.0 %MC. If the reading is outside the range, 18.0 to 22.0 %MC, the L622 is out of calibration.

Warning—There are two (2) hole plugs located on either side of the L622 handle. Do not remove these plugs because the adjustments below them are factory set and should not be adjusted by the customer. If adjustment is attempted, the unit will not be in calibration and will require factory re-calibration.

	Backlight	Battery	Restore Factory
Operation	<p>Enter the main menu and activate the Backlight item.</p> <p>Press the STORE button to change state of the backlight to ON or OFF.</p> <p>Life-time for alkaline batteries is ~9 hours (continuous use, Backlight ON).</p>	<p>Enter the main menu and activate the Battery item.</p> <p>When a low battery condition occurs, the battery voltage bar graph will be replaced with the message Too Low. Also, when in the readings mode, GRP will be replaced with BAT.</p> <p>Life-time for alkaline batteries is ~50 hours (continuous use, Backlight OFF).</p>	<p>Pressing the ARROW buttons at the same time while in the readings mode will clear memory and restore the L622 to factory settings. Warning, you will lose all changes made to the species list.</p> <p>Press the STORE button to restore factory settings.</p> <p>Press the GROUP or MENU button to cancel operation and return to the readings mode.</p>
Display	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Backlight ON </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> XXXXXXXXXXXXXXXXXX 4.0 Volts </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Factory Yes = STORE </div>
STORE	Press the STORE button to change state of the backlight.	Press the STORE button to return to the readings mode.	Press the STORE button to restore factory settings.
GROUP	Press the GROUP button to return to the readings mode.	Press the GROUP button to return to the readings mode.	Press the GROUP button to cancel the operation and return to the readings mode.
MENU	Press the MENU button to return to the readings mode.	Press the MENU button to return to the readings mode.	Press the MENU button to cancel the operation and return to the readings mode.
ARROWS	Press the ARROW buttons to return to the readings mode.	Press the ARROW buttons to return to the readings mode.	No function.

Technical Notes

Clock/Calendar—The L622 contains a real time clock and calendar. The clock/calendar is set through the Stat-Pak program. All reports use the clock/calendar to show the date and time a report is printed, and Group and Reading reports show when the first and last readings were taken.

Company Name—Your company name may appear on the reports. The company name is set through the Stat-Pak program.

Readings and Groups—The L622 can store up to 5000 readings in up to 200 groups. Groups are numbered 0 to 199 and can be selected at random. There is no limit to the number of readings per group as long as the total readings of all groups do not exceed 5000.

Automatic Menu Escape—When in the Menu System, after 15 seconds of no key presses the L622 will automatically return to the Readings mode ready to store the next reading in the current group.

Repeat Key—If a key (button) is held down for more than one (1) second, then the key pressed is repeated at a rate of one (1) repeat each second. After 5 repeats the rate doubles and after an additional 5 repeats the rate doubles again. Use this feature to scroll through a long list of species or readings.

Factory Species List

The L622 has a factory default of **32** species. The species name or specific gravity (SG) value may be changed from the Editing Specific Gravity mode or Editing Species Name mode menu item. This allows you to tailor the L622 species setting to a species not listed. The factory species list may also be custom configured through the Stat-Pak program. The values shown are median SG values. Any single wood species will have an SG variation. Again, if necessary, you can edit these SG values if you feel that your particular species has a slightly different SG median value based on your geographic region.

Additionally, the following resource is available to obtain specific gravity values for species not found in the L622 and Stat-Pak software.

<http://www.wagnersg.com/>

You can create your own custom species list in the meter as well as in Stat-Pak.

Species	SG
Alder,Red	.41
Cedar,EastRed	.47
Cedar,WestRed	.32
Cherry,Black	.50
Douglas Fir	.48
Fir,Balsam	.35
Fir,Cal Red	.38

Fir,Subalpine	.32
Fir,White	.39
Hemlock,East	.40
Hemlock,West	.45
Hickory,Nutmg	.60
Hickory,Pecan	.66
Hickory,Mockr	.72
Larch,Western	.52
Maple,Sugar	.63
Oak,North Red	.63
Oak,South Red	.59
Oak,White	.68
Pine,E White	.35
Pine,Jack	.43
Pine,Loblolly	.51
Pine,Ldgepole	.41
Pine,Longleaf	.59
Pine,Pnderosa	.40
Pine,Shrtleaf	.51
Pine,Slash	.59
Pine,Sugar	.36
Poplar, Yellow	.42
Redwood, Old	.40
SYP	.56
Custm Species	.50

Question and Answers

Q: I'm nervous about buying a new technology. What about Wagner Meters? How long have they been building this type of Hand-Held Moisture Meter?

A: Wagner Meters has been building quality moisture measurement instrumentation since the 60's. They are a leading supplier of sophisticated moisture measurement systems for the primary forest products industry. The advanced electro-magnetic wave technology used in Wagner Hand-Held Moisture Meters has been closely scrutinized by professional wood grading associations and scientists in the industry. It has proven reliable, consistent and much easier to use than pin-type resistance moisture metering.

Q: How can I take accurate moisture readings without sticking pins into my wood? Why doesn't my new Wagner Hand-Held Moisture Meter read the same moisture content as my old pin-type meter?

A: Pin-type meters work on a primitive, resistance principle that basically measures the flow of electricity through a substance. This method is subject to many environmental variables that can dramatically affect moisture readings such as chemicals in the water trapped within the wood and the temperature of the wood. Pin-type meter readings must always be corrected for any difference in temperature above or below 70 degrees F. Wagner Hand-Held Moisture Meters use advanced electro-magnetic wave technology and are sensitive to changes in density and the actual moisture content of the wood.

Q: What is the narrowest piece of lumber I can measure accurately with the Wagner Hand-Held Moisture Meter?

A: The Wagner model L622 measures boards as narrow as 2 ½" in width.

Q: What thickness boards can I measure?

A: You can accurately measure boards as thin as ½" and up to 2" thick.

Note: Make sure there is nothing behind boards less than 1" thick when you take the measurement because Wagner Hand-Held Moisture Meters will read through the thinner board and measure the moisture in the material behind. Under no circumstances should you measure a piece of wood that is sitting on a metal surface. The Wagner L622 measures to a depth of 1", which will reach the center of a 2" board)

Q: Can I get accurate results on 4x or thicker lumber?

A: No hand-held moisture meter can accurately read to the center of 4x material unless you are willing and able to drive pins 2" into the lumber all the way up and down its length and breadth. However using a Wagner Hand-Held Moisture Meter, you can quickly and easily scan 4x lumber on all sides. Then only the center 1 5/8" would be unmeasured.

Note: Most wood grading agencies are generally not concerned about the moisture content in the center of thicker beams and posts. They consider 1" deep scanning more than adequate.

**Q: Where is the reading taken with a pin-type meter?
With a Wagner Hand-Held Moisture Meter?**

A: Pin-type meters take their measurements at the depth that you've been able to drive the pins . . . and only in a line between the non-insulated portions of the pins (often only the tips). In contrast, Wagner Hand-Held Moisture Meters generate a three-dimensional field that measures from the surface of the wood to a depth of 1" under the entire sensor (approximately 2 1/2" x 2 1/2" on the L622).

Q: How does this difference in measuring techniques affect accuracy?

A: If you're using a pin-type meter, the moisture content you are reading is determined by the micro-thin path the electricity takes to travel from one pin to the other. In effect, it measures only the moisture content of that very tiny path. If there is a single wet fiber between the pins, the electric charge will flow easily along that fiber and cause pin-type meters to exaggerate the moisture content in the wood when in fact it is just a very small fiber that is wet. However, if the place you choose to drive the pins into the wood is simply extraordinarily dry and untypical of the rest of the piece you will get an exaggerated dry reading. On the other hand, Wagner Hand-Held Moisture Meters take an average of the moisture content discovered by the full scan of the three-dimensional field so small wet fibers are not read as large wet spots. Plus, it only takes seconds to scan the entire board.

Q: How are moisture meters affected by surface moisture?

A: Most moisture meters can be affected by standing water, or visible water on the board. You should always wipe off as much excess water as possible. Once the standing water is

removed, Pin-type meters with non-insulated pins will register a highly exaggerated moisture reading. Wagner Hand-Held Moisture Meters will read slightly higher than normal (probably less than 3 to 4%). If water is allowed to soak into the wood, it will naturally show a higher moisture content. If a piece of wood is quite rough, it will soak up the water quite readily and readings will be affected.

Q: What are the effects of relative humidity on Wagner Hand-Held Moisture Meter readings?

A: As long as there is not condensation on the bottom surface of the instrument there is no effect from changes in relative humidity.

Q: Do the meters on the Wagner Hand-Held products ever require readjustment? Does my Wagner Hand-Held Moisture Meter need to be calibrated? If so, how often must it be done?

A: Occasionally Wagner Hand-Held Moisture Meters require adjustment. However, the process of checking zero points and calibration is very simple.

Note: Wagner Hand-Held Moisture Meters are originally calibrated at the factory. Type and amount of use will determine how long this original calibration will last. A calibration verification block is available for the customers who must check their calibration often. Anytime that the meter is not reading correctly on that calibration verification block, it should be sent to the factory for calibration.

Q: I have a very thin veneer over a doorstock and I'm trying to measure the moisture content of the core. Can I measure accurately through laminated materials?

A: If you're measuring an all-wood door with a very thin veneer wood laminate, you can probably use a correction factor to determine the moisture content of the core material.

Note: If you're measuring a door that has a plastic laminate or Formica-type laminate, the Formica laminate is going to have its own density, which is going to affect the reading of the meter. You can determine the variance caused by the laminate by first measuring only the core and then the core with the laminate. For example, if the core measures 12% without the laminate and 13.5% with, you will then know to correct your readings of the combined material by 1.5%.

Q: Will Wagner Hand-Held Moisture Meters work the same on rough lumber as they do on smooth clean lumber?

A: There are little fibers in very rough material that actually allow a minute layer of air between the meter and the main body of the wood. However, this should not materially affect the reading, or if it does, only slightly lower.

Note: It's important on rough material to use some pressure and force the meter down firmly against the wood. Occasionally, the measurement of exceptionally rough material may necessitate adding 1 to 2% to get an accurate reading.

Q: Can you check moisture content of plywood, particle board or wafer board with hand-held meters?

A: Because of the glues and mixed species nature of these materials, it is very difficult to take reliable moisture readings with pin-type or Wagner Hand-Held Moisture Meters.

Note: However, if you would like to work up your own calibrations for materials you use repetitively, you can contact Wagner for guidelines and suggestions.

Q: Does it matter which way you set a Wagner Hand-Held Moisture Meter on the wood? Cross grain, with the grain, or at an angle?

A: Because Wagner Hand-Held Moisture Meters use advanced electro-magnetic wave technology, they are completely unaffected by orientation on the wood.

Q: Are the readings that I take with my Wagner Hand-Held Moisture Meter affected by the temperature of the wood like those taken with a pin-type meter? What about frozen wood?

A: Unlike pin-type meters which require corrections for temperatures above or below 70 degrees F, the readings on the Wagner Hand-Held Moisture Meter are essentially unaffected by the temperature of the wood. Moisture content can accurately be measured as soon as the hot wood is taken out of the kiln. When the same wood is measured hours later, again with the Wagner Hand-Held Moisture Meter, the readings stay consistently the same, unless the wood continues to dry during the cooling process.

For frozen wood, as long as the moisture content of the wood you are measuring is below 15%, you can get reliable readings. When moisture content readings in frozen wood exceed 15%, you will need to make corrections.

Q: How rugged are the Wagner Hand-Held Moisture Meters? Are they too delicate to be used on an abusive production line?

A: The Wagner L622 Moisture Meter is a tough production-line model, but can possibly be damaged by being dropped, or slammed down hard on wood surfaces.

Q: How accurate are Wagner Hand-Held Moisture Meters?

A: The Wagner Hand-Held Moisture Meter is as accurate as or more accurate than any moisture meter that is on the market. This can be verified by several university studies.

Q: Are Wagner Hand-Held Moisture Meters safe to use?

A: Wagner's Hand-Held Moisture Meters have been tested and certified to comply with FCC and CE regulations.

Q: What is proper moisture content in wood? What moisture content is considered too high or too low?

A: There is no one correct answer for this question. As a rule, differences in woods and their uses determine the moisture content desired. For instance, if the wood is to be used in construction as a stud for building, the moisture content requirement could be under 15% to 19%. If the wood is to be glued, and it is too dry it will not bond. If it is too wet, it will not hold. Ideally the moisture content of wood to be used in furniture is between 6 and 8%.

The best way to determine the proper moisture content of the wood you are using is to contact the nearest University Wood Product Representative. You may also call the Forest Products Research Laboratory in Madison, WI (608-231-9200).

Warranty

Wagner Meters warrants this product against defects in material and workmanship for one (1) year from the date of purchase, subject to the following terms and conditions:

Wagner's liability under this warranty shall be limited, at Wagner's option, to repair or replacement of this product or any part thereof, which is demonstrated to be defective. To exercise this warranty, customer must telephone, fax or e-mail Wagner's Customer Service Department for factory instructions for shipment. This limited warranty does not apply if accident, negligent handling, misuse, alteration, damage during shipment, or improper service have damaged the product. Wagner Meters shall, in no event, 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, as recommended in the manual, the meter should stay in calibration; however, because Wagner Meters has no control over the manner in which the unit will be used, it makes no warranty that the meter will stay in calibration for any specific period of time. Wagner Meters recommends purchasing a calibration verification block, or on a yearly maintenance schedule, return the unit to the factory for diagnostic checkup and re-calibration on the anniversary date of purchase.

This warranty is in lieu of all other warranties, whether oral or written, express or implied. Any implied warranties, including implied warranties of merchantability and fitness for a particular purpose, are excluded. Agents and employees of Wagner Meters are not authorized to make modifications to this warranty or additional warranties binding on Wagner Meters. Accordingly, additional statements, whether oral or written, except written statements from an officer of Wagner Meters do not constitute warranties and should not be relied upon by the customer.

This warranty is personal to the customer purchasing the product from Wagner Meters and is not transferable.

Registration

Please register your new meter with Wagner Meters at: www.genuinewagner.com

Repair Service

All products returned for repair must be accompanied by a Repair Order form found on our website at:
www.wagnerrepairs.com

Repair should be returned to the following address:

Wagner Meters
326 Pine Grove Road
Rogue River, Oregon 97537
Phone (541) 582-0541
Fax (541) 582-4138

Standard repairs: Customer must pay the expense of shipping the product to and from Wagner.

Warranty repairs: Customer must pay the expense of shipping the product to Wagner. Wagner will pay the cost of return shipment by surface carrier within the Continental United States. Customer must pay all extra costs of expedited shipping or shipment to and from locations outside of the Continental United States.

E-mail:

support@wagnermeters.com

Web:

www.wagnermeters.com

International Repair Service

Call or email for nearest Repair Depot

Phone:

1-800-634-9961

Email:

support@wagnermeters.com

Spare/Replacement Parts and Part Numbers

840-60130-003, Calibration Verification Block

711-00524-003, Battery Cover

880-61205-002, Kit, USB and Serial Adapter with Coil Cord

674-00005-001, USB Adapter

830-61201-001, Serial Adapter

674-04200-022, Coil Cord, Dbl End, 6-Pos, Black (Stat Pak)