

Operating Instructions

Version 3.0



HYDROMETTE BL COMPACT



EN



GANN MESS- U. REGELTECHNIK GMBH

70839 GERLINGEN

SCHILLERSTRASSE 63

INTERNET: <http://www.gann.de>

Verkauf National:
Verkauf International

TELEFON 07156-4907-0
TELEFON +49 7156-4907-0

TELEFAX 07156-4907-40
TELEFAX +49 7156-4907-48

EMAIL verkauf@gann.de
EMAIL sales@gann.de



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1 Foreword

1.1 User Description

These instructions are intended for the end user of the product. The end user of the product is a person who has read and understood these operating instructions, is an experienced user of similar devices and is aware of all possible dangers and can act accordingly.

The device may only be used by persons aged 14 and over who have read and understood these operating instructions, are familiar with the operation of similar products and are aware of all possible dangers and act accordingly.

The device is intended for use by persons who have experience with moisture measurements (structural moisture, wood moisture, climate, etc.).

All personnel involved in the operation, installation, inspection and maintenance of the product must be qualified to carry out the associated work. If the personnel concerned do not already have the required knowledge and skills, appropriate training and instruction must be ensured.

All local regulations must be observed.

1.2 Intended Use

The Hydromette BL Compact is an electronic moisture meter for various types of wood as well as for soft building and insulating materials.

The electrode pins are pressed into the respective medium and allow recording of the moisture content of sawn timber, chipboard, veneers and wood fibre materials up to a maximum of 25 mm thick or normal gypsum and mixed plasters.

The Hydromette BL Compact may only be used for moisture measurements in wood and in soft building and insulating materials.

1.3 Non-Intended Use





The device is not intended for any applications that are not listed in these operating instructions.

The device, accessories, tools, software, etc. must be used in accordance with these instructions, taking into account the working conditions and the work to be performed. Using the product for work other than that for which it is intended will result in a hazardous situation.

The device may only be used together with the original accessories. The device must only be used within the specified performance limits as described in these instructions.

1.4 Explanation of the General Warnings

The following danger levels are used in this operating manual to indicate potentially dangerous situations and important safety instructions:

Danger Level	Description
 DANGER	Danger / Indicates a hazardous situation which, if not avoided, will result in death or serious irreversible injuries.
 WARNING	Warning / Indicates a hazardous situation which, if not avoided, could result in death or serious irreversible injuries.
 CAUTION	Caution / Indicates a hazardous situation which, if not avoided, could result in minor or moderate injuries.
 INFORMATION	Indicates important information.

1.5 General Safety Instructions

It must be ensured that the complete instructions and all safety instructions have been read and understood before using this device.

All instructions must be followed. This prevents accidents that can result in property damage or minor or moderate injuries.



All safety information and instructions must be kept for future reference and passed on to subsequent users of the product.

INFORMATION

The manufacturer shall not be liable for any damage to property or injuries to persons that can be attributed to incorrect handling or non-compliance with the safety instructions. In such cases, the warranty shall be void.

1.5.1 Persons at Risk

Persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge must be supervised or instructed in the safe use of the device and understand the associated hazards.

Children must be supervised to ensure that they do not play with the device. The device is not a toy. There is a risk of swallowing small parts of the device (e.g. battery compartment cover) or an accessory (e.g. TF-Stick, not for all BL device types).

This device is not intended for use by persons with reduced physical, sensory or intellectual capabilities, or lack of experience and/or knowledge.



WARNING

Risk of suffocation, injury or permanent disability. The device must not be used by persons under the age of 14!

Risk of suffocation! Keep packaging away from children.

1.5.2 Preparation and Start-up

Never store or place the device in a location where it can fall or be drawn into water or other liquids.

To avoid the risk of electric shock, never immerse the device in water or other liquids.

Always remove all packaging before operating the device.



WARNING

Fire hazard!
Do not use a damaged device.

In the event of visible damage, strong odours or excessive heating of components, the battery must be removed immediately and the appliance must not continue to be used.

1.5.3 Use / Operation



CAUTION

Risk of damage. The device is a highly sensitive measuring instrument.
Only use the device in a controlled electromagnetic environment.

Do not let the device drop onto hard surfaces. This can result in malfunctions or functional failures. Normal use of the device, without excluding hazards to the user, cannot be guaranteed.

The device is fragile.

To avoid overheating, the device must not be covered or used near heat sources or direct sunlight and only be used at ambient temperatures between 0 °C and 40 °C.

The device may not be stored or operated in aggressive atmospheres or atmospheres containing solvents!

The measuring device may be operated in residential and commercial areas.

Measurements **must not** be carried out on conductive surfaces.

Static charge - At low humidity levels, static electricity with high voltage can build up, favoured by external circumstances (friction during material transport, high insulation value of the surrounding area), which can lead to strong fluctuations in measured values. Even the instrument operator may - inadvertently - contribute to the build-up of a static charge by the clothing worn. A considerable improvement can be achieved by the operator and the measuring instrument being absolutely still during measuring, as well as by earthing (contact with conducting metal, water or heating pipes, etc.).

1.5.4 Care, Maintenance and Inspection



CAUTION

Remove the battery before cleaning the product. Do not use abrasive cleaning cloths or chemicals to clean the product as these can damage the surface.

Stop using the product in the case of visible damage, strong odour development or excessive overheating of components.

Only use original accessories.

Changes to the device and technical modifications are not permitted without the written consent of the manufacturer.

All connection options and the device itself must not be sprayed directly or indirectly with water when cleaning (connections depend on the device! e.g. BNC-, 2.5 mm, 3.5 mm jack receptacle and mini-USB port).

Our recommendation: To ensure functionality, have all your measuring equipment checked by the manufacturer every 2–3 years (depending on the frequency of use).

1.5.5 Troubleshooting

Do not repair the device yourself. Contact the manufacturer if the device is not functioning properly.

1.5.6 Disposal

Electrical equipment, accessories and packaging must not be disposed of together with household waste (only for EU countries) and must be disposed of in compliance with the European Directive 2012/19/EU on waste electrical and electronic equipment and its implementation in accordance with national law. Electrical equipment that has reached the end of its service life must be collected separately and sent to an environmentally compatible recycling facility.

The WEEE symbol draws attention to the need for disposal.

The device contains a battery. Batteries must not be disposed of with normal household waste. They may contain toxic heavy metals and are subject to the hazardous waste ordinance. For this reason, dispose of the battery at a local collection point for the recycling of waste electrical and electronic equipment. Caution, there is a risk of explosion if the wrong type of battery is inserted. Handle used batteries according to the manufacturer's instructions.

Gann Mess- u. Regeltechnik GmbH accepts no liability for damage caused by non-compliance with the operating instructions or by violation of a duty to care during transport, storage or operation of the instrument, even if this duty to care is not specifically discussed in the operating instructions.

1.6 Specific Warnings



CAUTION

There is a danger of injury from the measuring pins if the measuring instrument is carried without the protective cover or other protective packaging. There is also a danger of injury due to careless handling of the measuring pins when piercing the material to be measured. Before pressing the electrode pins into walls or ceiling, ensure that no electrical cables, water pipes or other utilities are present using suitable means.

Operating note for the protection cap

When removing the cap, hold on the narrow sides and pull it off to the side.

When attaching, one of the two clips must first snap into place - then tilt the cap forward and lock the other clip by gently squeezing the cap.

2 Specifications

2.1 Technical Data

Hydromette

Display:	LCD segment display with three lines
Display resolution:	0.1 % for humidity
Response time:	< 2 s
Storage conditions:	+ 5 to + 40 °C - 10 to + 60 °C (for a short time)
Operating conditions:	0 to + 50 °C - 10 to + 60 °C (for a short time) < 85 % R.H. non-condensing
Power supply:	9-V-block battery
Types that can be used:	Types 6LR61 and Type 6F22
Dimensions:	195 x 50 x 30 (L x W x H) mm
Weight:	approx. 180 g
Protection class:	III
Protection rating:	IP20

2.2 Prohibited Environmental Conditions

- Condensation. humidity continuously too high (> 85% R.H.) and wetness
- Permanent presence of dust and combustible gases, vapours or solvents
- Ambient temperatures continuously too high (> +50 °C)
- Ambient temperatures continuously too low (< 0 °C)

2.3 Transport- & Storage Conditions

The Hydromette BL Compact may **only be stored in the packaging provided by the manufacturer or available from the manufacturer as an accessory**. The manufacturer shall not accept any liability or warranty for damage that may occur to the device or to the sensor system as a result of non-compliance.



INFORMATION

In particular, **avoid keeping or storing the devices in foams not supplied by the manufacturer**, as these can damage the sensors due to possible outgassing and result in incorrect measurements.

2.4 Measuring Range

Wood moisture:	5.5 to 26 %
	4-stage wood type correction
Structural moisture:	
Lime mortar	0.5 to 2.5 % by weight
Gypsum plasters	0.6 to 3.5 % by weight
Mixed plaster	0.5 to 2.5 % by weight
Cork	5.0 to 22.0 % by weight
Insulation- and insulating materials:	
Styrofoam	9.1 to 29.0 % by weight
Wood fibre insulation boards	8.0 to 30.0 % by weight

3 General Information

3.1 Standards and Directives

This measuring instrument fulfils the requirements of the applicable European and national directives (2014/30/EU) and standards (EN 61010). Appropriate declarations and documentation are held by the manufacturer.

To ensure trouble-free operation of the measuring instrument and operational reliability, the user must carefully read and understand the operating instructions.

3.2 Warranty

The measuring instrument may only be operated under the specified climatic conditions. These are listed in [chapter 2.1 "Technical Data](#) of the Hydromette".

This measuring instrument may only be used under the conditions and for the purposes that it has been designed for. Operational reliability and functionality are no longer ensured if the device is modified or adapted. Gann Mess- u. Regeltechnik GmbH shall not be liable for any damage arising from such modifications or adaptations. The risk is borne solely by the user.

The measuring instrument and any accessories may only be properly used as described in these instructions. Keep the device and accessories out of the reach of children!

The device must not be stored or operated in air that is corrosive or contains solvents!

The notes and tables in these instructions regarding permitted or normal humidity conditions in practice and the general definitions of terms have been taken from the specialist literature. Therefore, the manufacturer cannot guarantee the correctness. The conclusions to be drawn from the measurement results depend for each user on the individual circumstances and the knowledge gained from his professional experience.

The measuring instrument may be used in the residential and commercial sectors.

The measuring instrument may only be stored in the packaging provided by the manufacturer or available from the manufacturer as an accessory. The manufacturer accepts no liability for damage that may occur to the device or the sensor system as a result of non-compliance.

Gann Mess- u. Regeltechnik GmbH accepts no liability whatsoever for damage caused by non-compliance with the operating instructions or by breach of the duty of care during transport, storage and handling when operating the device, even if this duty of care is not specifically referred to in the operating instructions.

4 Description of the Product

The Hydromette BL Compact is an electronic **moisture meter** for **various types of wood** as well as for **soft building and insulating materials**.

The electrode pins are pressed into the respective medium and allow recording of the moisture content of sawn timber, chipboard, veneers and wood fibre materials up to a maximum of 25 mm thick or normal gypsum and mixed plasters.

After measuring, the construction material specific minimum and maximum values can be retrieved.

The characteristic curves stored in the device for various construction and insulating materials as well as the 4-level wood type correction allow the measured values to be displayed directly in per cent by weight (wt.-%).

An internal memory is available for storing data (min. max and hold function).

The silicone buttons give haptic feedback for important functions.

10 electrode pins with a length of 20 mm are included with the first delivery.

Additional screw-on electrode pins with a length of 175 mm are available as accessories for measuring in insulating materials.

5 Device Layout and Button Assignment



Figure 5-1: View of the Hydromette BL Compact

5.1 Display Symbols

5.1.1 Main Menu Symbols

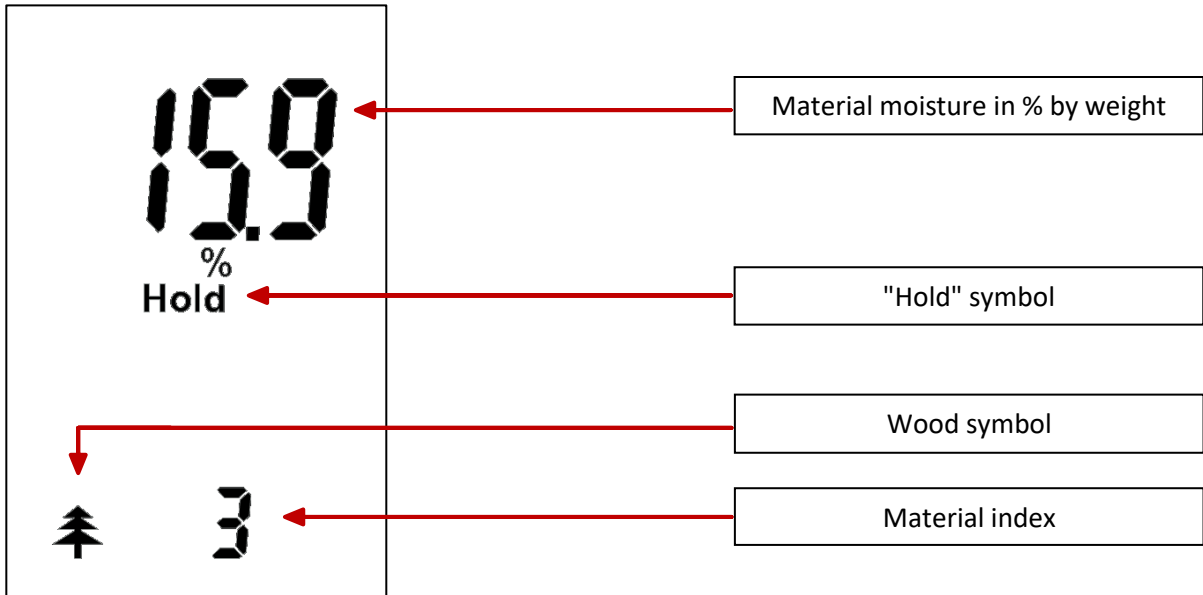


Figure 5-2: Main menu symbols

5.1.2 Other Symbols

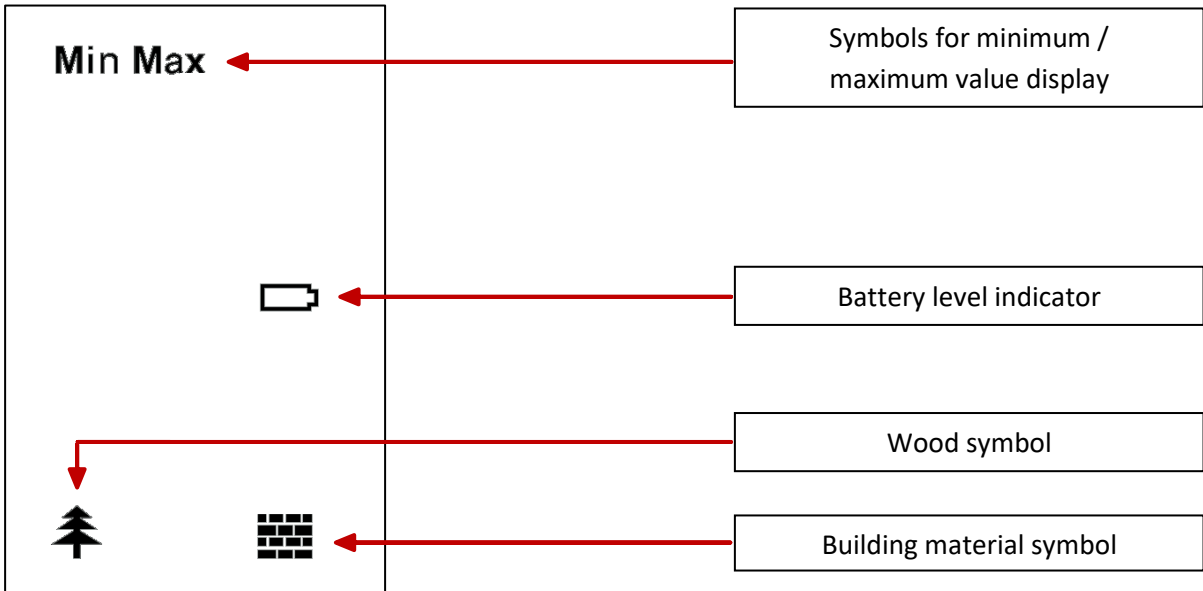



Figure 5-3: Other symbols

5.2 Switching the Device On and Off

The device is switched on and off by pressing the "On / Off" button . The device starts in the measuring menu or main menu. The measuring process can be carried out here [[see Chapter 5.3.1 "Measurement menu \(main menu\)"](#)].

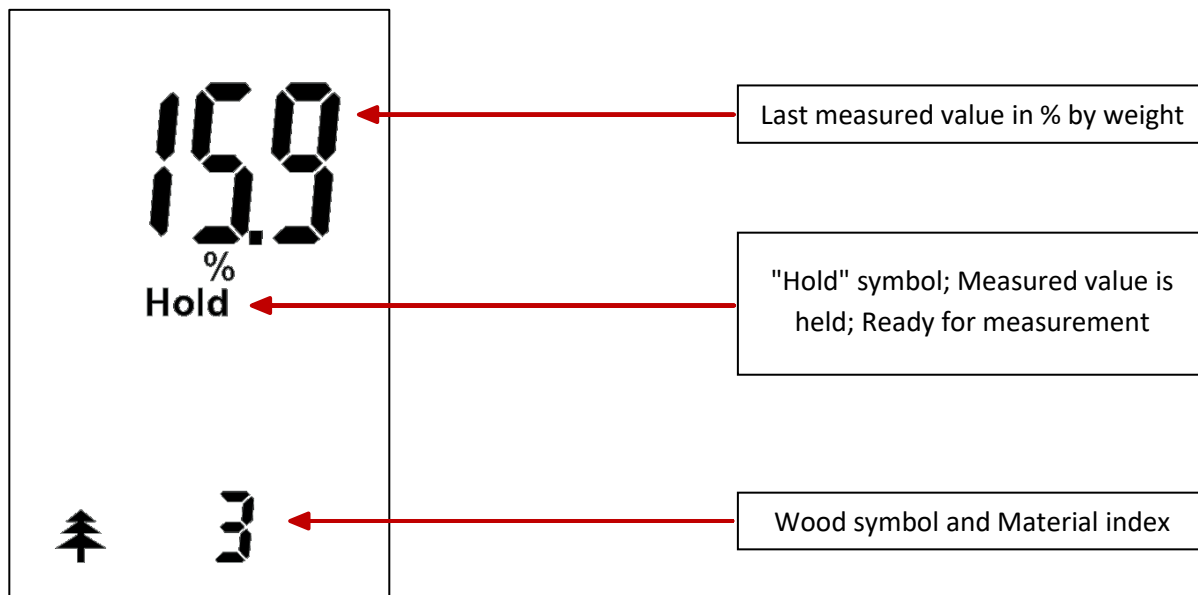


Figure 5-4: Standard measuring menu

5.3 Setting Menus

The following menu items can be selected one after the other by repeatedly pressing the "Down" button:

1. **Measuring menu** (main menu): The measuring process can be performed here.
2. **Material setting**: The wood type can be selected here.
3. **Maximum value display**: The largest measured value is shown here.
4. **Minimum value display**: The smallest measured value is shown here.

The menu items are selected in reverse order by pressing the "Up" button.

5.3.1 Measuring Menu (Main Menu)

After switching on, the device is in the measuring menu (main menu). The other menus can be accessed from here by pressing the "**Up**" or "**Down**" buttons.

In the measuring menu, the last measured values are displayed according to the material selection made with the associated units and the note "**Hold**".

A new measurement is started by pressing the "**M**" button (*> 2 seconds*).

During the measuring process, the "**Hold**" symbol disappears from the display. After releasing the "**M**" button, the measured value is held; the "**Hold**" symbol is displayed again.

If the new measured value is larger than the previous maximum value "**Max**" flashes on the display. If the new value should be accepted, the "**M**" button must be pressed briefly (*< 1 second*). If the value should not be saved, a new measurement can be started by pressing and holding (*> 2 seconds*) the "**M**" button without changing the previous maximum value.

If the new measured value is smaller than the previous minimum value, "**Min**" flashes on the display. If the new value should be accepted, the "**M**" button must be pressed briefly (*< 1 second*). If the value should not be saved, a new measurement can be started by pressing and holding (*> 2 seconds*) the "**M**" button without changing the previous minimum value.

If the measuring range of a selected material is exceeded or not reached, a flashing measured value warns you, which is also marked alternately with "**LO**" or "**HI**".

5.3.2 Material Setting



The material can be selected in this menu. Please refer to the [material table](#) in [Chapter 9.1](#) or the [wood type table](#) in [Chapter 9.2](#) in the appendix for the corresponding material characteristics.

The set material index and the symbol for wood moisture or material moisture are displayed.

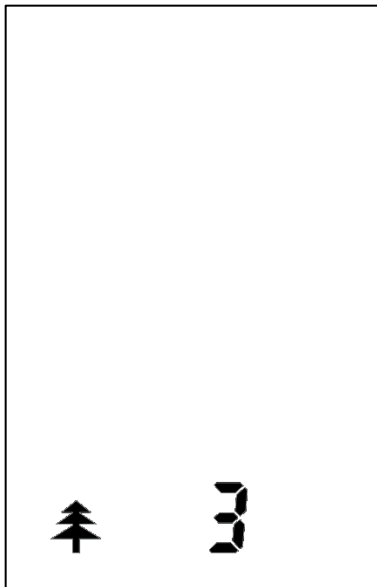


Figure 5-5: Display of material setting menu

To be able to make the material settings, the device must be switched on and in the measurement menu (main menu). Then press the **"Down"** button once to access the material settings. If you now want to change the setting for the material, press the **"M"** button briefly (*< 1 second*).

The measuring mode display flashes and can be set using the **"Up"** and **"Down"** buttons. The change is saved by briefly (*< 1 second*) pressing the **"M"** button again.

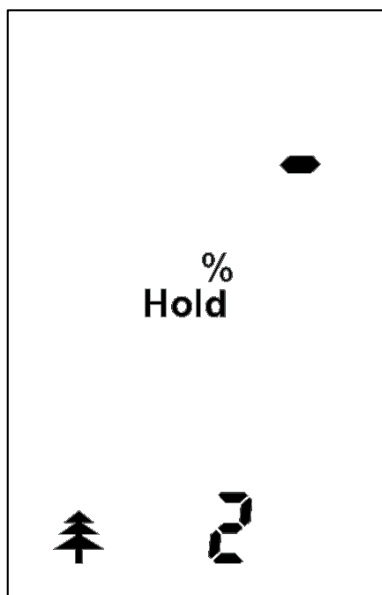


Figure 5-6: Display after a material change

After confirming the change, the display automatically jumps to the measuring menu of the (newly) selected material. This removes the values of the previous material from the display. Any stored **"Max"** or **"Min"** values remain in the memory of the respective material.

Now a new measurement can be performed by pressing and holding (*> 2 seconds*) the **"M"** button.

5.3.3 Maximum Value Display



The highest measured value of a measurement series is displayed together with the "Max" display symbol.

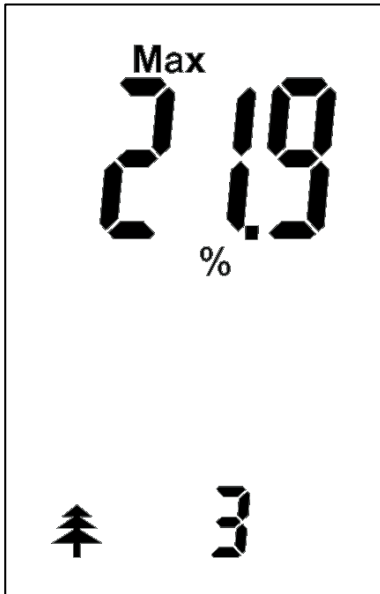


Figure 5-7: Maximum value display

A dash at the position of the measured value indicates that there is no maximum value (yet).

If an existing maximum value should be deleted, the displayed value must be selected by briefly (*< 1 second*) pressing the "M" button.

The value flashes and can now be deleted by pressing and holding (*> 1 second*) the "M" button. A dash at the position of the measured value indicates the successful deletion of the value.

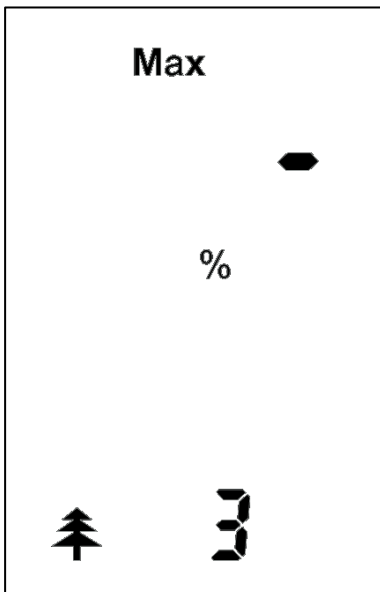


Figure 5-8: Deleted maximum value

The device returns to the measuring mode by briefly (*< 1 second*) pressing the "M" button again.

A new measurement can then be performed immediately by pressing and holding (*> 2 seconds*) the "M" button.

5.3.4 Minimum Value Display



The lowest measured value of a measurement series is displayed together with the "Min" display symbol.

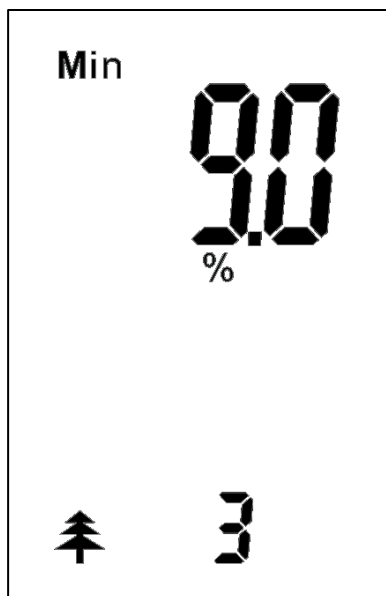


Figure 5-9: Minimum value display

A dash at the position of the measured value indicates that there is no minimum value (yet).

If an existing minimum value should be deleted, the displayed value must be selected by briefly (*< 1 second*) pressing the "M" button.

The value flashes and can now be deleted by pressing and holding (*> 1 second*) the "M" button.

A dash at the position of the measured value indicates the successful deletion of the value.

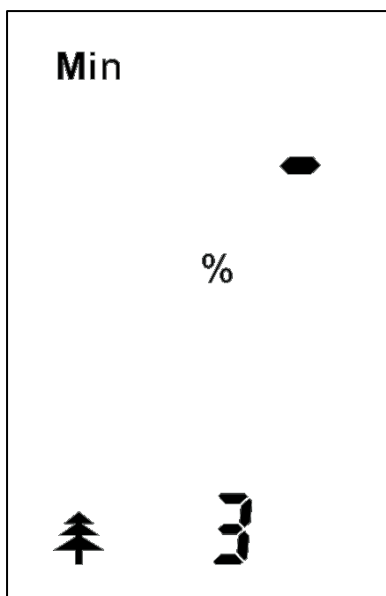


Figure 5-10: Deleted minimum value

The device returns to the measuring mode by briefly (*< 1 second*) pressing the "M" button again.


A new measurement can then be performed immediately by pressing and holding (*> 2 seconds*) the "M" button.

6 Other Functions

6.1 Automatic Switch-Off

If no button is pressed within approx. 90 seconds, the device switches off automatically. The current values are retained and are displayed again after the device is switched on again.

6.2 Battery Monitoring

If the battery symbol  is shown in the display, the battery is dead and must be replaced. A list of battery types that can be used can be found in chapter [„2.1 Technical Data“](#).

The device serial number is also located in the battery compartment.

6.3 Querying the Device Firmware

To query the firmware version of the device, the "Down" button (∇) and the "Up" button (Δ) must be pressed simultaneously for approx. 2 seconds when the device is switched on. A "V" appears in the first line of the display, the firmware version number in the second line and a specific ID number (device-dependent) in the third line.

Briefly press the "M" button to return to measuring mode.

7 Application Notes

7.1 Comparative Measurement or Reference Measurement

With this type of measurement, almost all (set) building materials or mixed materials or mixed structures can be measured comparatively. It is important that these measurements are only carried out on the same materials or structures.

A deliberately dry spot must be determined on the structure to be measured. Select up to 5 measuring points within an imaginary square with a side length of approx. 20 cm. A dry sample of material with minimum dimensions of 20x20x5 cm can also be used as a reference. When measuring using a sample piece, it is important that this measurement is carried out on a non-conductive surface (e.g. polystyrene). The mean value is now to be calculated from these up to 5 measured values. This forms the reference value for the dry condition of the material or structure. Larger areas can thus be analysed using increased display values, e.g. with regard to the maximum moisture or the extent of moisture damage, and a two-dimensional moisture profile can be created. Drying progress can also be checked and observed by repeating measurements at defined measuring points.

When assessing the display values using the **capacitive measuring method**, it should be noted that metal in the substrate (iron armouring, cables, pipes, plaster rails, etc.) can lead to an increase in the measured value depending on the overlap height. Furthermore, it must be ensured that the minimum distances of 8–10 cm to corners, angles and edges are observed. Measurements in drilled holes or mortises are always incorrect measurements and cannot be used for assessment. Please note that digit measurements taken with devices with a measuring range of 0–100 digits and devices with a measuring range of 0–200 digits are not comparable.

When assessing the display values using the **resistance-based measuring method**, it is essential that you use suitable means to ensure that there are **no** electrical cables, water pipes or other supply lines in this location **before** drilling holes for probes or before knocking electrode pins into walls, ceilings, floors, etc.



INFORMATION

Digit readings obtained using the resistance-based measurement methods are not comparable with digit readings obtained using the capacitive measurement method.

Digit values are non-dimensional measured values and no real humidity values in per cent (%)! For this reason, the measured values are displayed in digits WITHOUT %!

7.2 General Information on Wood Moisture Measurement

The wood moisture in the GANN Hydromettes® is displayed in per cent by weight (wt.-%) in relation to absolutely dry wood (bone-dry).

If wood is stored for extended periods in a given climate it assumes a moisture content corresponding to this climate, which is also termed equilibrium moisture or **wood moisture equilibrium**. When the equilibrium moisture is reached the wood does not give off or absorb any further moisture for constant ambient climatic conditions. The wood moisture equilibrium in the winter months is approx. 6.0% to 7.5% wood moisture (corresponds to 30–40% rel. humidity and 20–25 °C) and in the summer months approx. 10.5% to 13.0% (corresponds to 60–70% rel. humidity and 25 °C).

Wood shrinks when it gives off moisture to the surrounding air below the fibre saturation range. In contrast, wood swells when it absorbs moisture from the surrounding air below the fibre saturation range.

7.3 Notes on resistance-based Measuring Wood Moisture

The GANN Hydromettes works by measuring electrical resistance or conductivity, a principle which has been well-known for many years. This process is based on the fact that electrical resistance is highly dependent on the amount of moisture in the wood. The conductivity of oven-dried wood is very low, or the resistance is so high that no current worth mentioning can flow. The more water that is present, the greater the conductivity of the wood, or the lower the electrical resistance.

Above the fibre saturation point (from approx. 30 % wood moisture), the measurement loses accuracy as the wood moisture increase, depending on the type of wood, bulk density and wood temperature. At low wood moisture levels below 10 % or at low air humidity levels, **static electricity** with high voltage can build up, favoured by external circumstances (friction during material transport, high insulation value of the surrounding area), which can lead to strong fluctuations in measured values. The operator of the measuring instrument can also unintentionally contribute to the build-up of static charge from the users clothing. A significant improvement can be achieved by ensuring the operator and the measuring instrument remain completely still during the measuring process and by earthing (by touching conducting metal, water or heating pipes, etc.).

In order to achieve the qualitatively best possible measurement results, the wood used for the sample should be measured at multiple points. For this purpose, the electrode pins must be pressed or hammered in at right angles to the fibre direction up to at least 1/4 and at most 1/3 of the total wood thickness. To avoid measurement errors and the risk of the measuring pins breaking, the fastenings of the electrode pins must always be tightened properly and the area between the pin holders must be kept clean.

With uninsulated pins, the measured value is formed at the wettest point (the driven in / pressed-in electrode pins). If the moisture distribution in the wood is homogeneous, this means measuring the entire depth between the driven in / pressed-in pins.

Please note that:

- In order to determine any increased core moisture, the electrode pins must be driven in approx. 1/3 of the entire wood thickness.
- Particularly in the case of moisture ingress from outside. e.g. rain or condensation, only the increased surface moisture is measured, regardless of the penetration depth.

The **temperature of the wood to be measured** has a major impact on the electrical wood moisture measurement. The electrical resistance of wood changes not only with the water content, but also with the temperature. Assuming a constant water content, the resistance decreases with increasing temperature, whereas decreasing temperature results in an increase. This temperature dependence is not constant but increases with increasing wood moisture. It is not possible to measure frozen wood above 20 % moisture content.

Simple wood moisture measuring instruments are generally designed for a wood temperature of 20°C, so that if there are deviations from this temperature value, the display no longer corresponds to the actual wood moisture. At temperatures < 20 °C the wood moisture values displayed are too low, at temperatures > 20 °C they are too high. It is therefore necessary to correct the values obtained using an appropriate correction table. Various GANN Hydromettes® are already equipped with such temperature compensation, i.e. the wood temperature can be set directly on the measuring instrument and is automatically taken into account in the wood moisture display. For measuring instruments that do not have such **temperature compensation**, you can roughly calculate a measured value deviation of approx. 1 % wood moisture for every 10 °C deviation from 20 °C, provided the wood is dry. In addition, the GANN Hydromettes® have a [wood temperature compensation table](#) in the appendix of the operating instructions.

7.3.1 Test Adapter for resistance-based Wood Moisture Measurement

The test adapter for checking the wood moisture measuring section, available under order no. 31006070, can be used to check the functionality of the device and any existing accessories such as the MK 8 measuring cable or the M 18, M 19 and M 20 electrodes.

Depending on the device used, the measuring pins of the instrument must be held directly to the sockets of the test adapter or the device must be connected to the MK 8 measuring cable and the 4mm plugs of the cable plugged into the sockets of the test adapter. If an electrode is also to be tested, connect the cable to the electrode and hold the pins of the electrode to the sockets of the test adapter.

Select the (material) setting on the measuring instrument that corresponds to the imprint on the test adapter or the description in the operating instructions for the test adapter. No active sensor may be connected.

7.4 General Notes on Structural Moisture Measurement

The structural moisture is mainly displayed in "digits" (depending on the device). Digit values are non-dimensional measured values and no real humidity values in per cent (%)! This can be used to measure almost all set building materials or mixed materials or mixed structures by comparative measurements within the same material or structure.

Pure building materials with corresponding characteristic curves are specified with weight percentages (wt. %) in relation to the dry weight or also in CM-% (moisture determination according to the calcium carbide method). Depending on the type of GANN Hydromette used, this is done using programmed characteristic curves or independent conversion using tables.

If a material is in a certain ambient climate for a longer period of time, it takes on a moisture content corresponding to this climate, which is also referred to as **equilibrium moisture** or practical moisture content. On reaching the equilibrium moisture content, the material no longer loses moisture if the surrounding climate remains the same and also no longer absorbs any moisture. The equilibrium values generally mentioned refer to a climate of 20 °C and 65 % relative humidity. However, these values must not be confused with the values at which the material can be worked or processed.

Floor coverings and paints must be considered and assessed in conjunction with the diffusion capacity of the material used. For example, when laying a PVC floor covering, the subsequent average levelling moisture content must be taken as a basis, i.e. in a centrally heated room with an anhydrite screed, installation should wait until a moisture content of approx. 0.6% by weight has been reached. In contrast, wood parquet flooring can be laid on a cement screed with normal stove heating at a moisture content of 2.5 - 3.0% by weight.

The respective long-term ambient climate must also be taken into account when assessing **wall surfaces**. The lime mortar plaster in an older vaulted cellar may well contain a moisture content of 2.6% by weight, but a gypsum plaster in a centrally heated room would have to be labelled as too damp from a moisture content of 1.0% by weight.

When evaluating the moisture content of a material, the surrounding climate is the primary consideration. All materials are subject to continuously changing temperatures and air humidity. The influence of the material moisture depends significantly on the heat conductivity, the thermal capacity, the resistance to water vapour diffusion and the hygroscopic properties of the material.

The "target humidity" of a material is the humidity that corresponds to the mean value of the equilibrium humidity under changing climatic conditions to which it is constantly exposed. The humidity values in living spaces in Central Europe are approx. 45 - 65 % RH in summer and approx. 30-45 % RH in winter. These fluctuations can cause damage in centrally heated rooms in winter.

It is not possible to lay down generally applicable values. Much more it always requires the technical and expert experience to correctly evaluate the measured values.

Different building materials, such as clay building materials, etc. cannot be measured with the usual accuracy due to their different mineral admixtures or burning times. However, this does not mean that comparative measurements in the same building material and on the same object are not meaningful. Different display values can be used, for example, to localise the extent of a moisture

field (water damage), or comparative measurements on dry interior walls and damp exterior walls can be used to determine progress in drying out.

Attention:

The notes and tables in these operating instructions on permitted or normal humidity conditions in practice and the general definitions of terms have been taken from the specialist literature. No responsibility can therefore be assumed by the manufacturer of the measuring instrument for the correctness of this information. The conclusions to be drawn from the measurement results are related to the individual conditions and the knowledge from professional experience for each user.

7.5 Notes on resistance-based Structural Moisture Measurement

The GANN Hydromettes work according to the electrical resistance and conductivity measurement method that has been known for years. This process is based on the fact that electrical resistance is highly dependent on the amount of moisture in the material. The conductivity of oven-dried material is very low, or the resistance is so high that no current worth mentioning can flow. The more water that is present, the greater the conductivity of the material, or the lower the electrical resistance.

In order to achieve the highest quality measurement result, the materials to be measured should be measured at several points. To do this, the electrode pins must be pressed or driven into the material. To prevent measuring errors and breakage of the measuring pins, the fastenings of the electrode pins must always be tightened well and the area between the tip holders kept clean.



INFORMATION

Attention: We do not recommend pressing / driving the electrode pins into hard building materials (screed, concrete, etc.), as this can lead to a considerable measurement difference (the value displayed is too low/dry). The contact between the electrode pins and the material to be measured is problematic.

Where it is not possible to press in or drive in due to the hardness of the material (screed, concrete, etc.), appropriate holes must be predrilled. The diameter of the hole depends on the accessories available. A sharp drill bit and a low speed are very important here. If the drilled hole is hot after drilling, wait at least 10 minutes before inserting the electrodes or the contact agent.

The following applies in principle:



INFORMATION

- Generally, both electrode pins are to be applied to the **same** contiguous material to be measured.



CAUTION

- Before drilling holes for probes or hammering electrode pins into walls, ceilings, floors, etc. make absolutely sure by suitable means that there are no electrical cables, water pipes or other supply lines in this location.

With uninsulated pins, the measured value is formed at the wettest point (the driven in electrode pins). If the moisture distribution in the material is homogeneous, this means measuring the entire depth between the driven-in pins.

It should be noted that only the increased surface moisture is measured, particularly in the case of moisture ingress from outside, e.g. rain or condensation, regardless of the penetration depth of the electrode pins.

The measurement of frozen material is not possible.

Insulating materials, e.g. rock/glass wool, plastic foams, etc. cannot be measured accurately when dry due to their high insulating properties. In most cases, measured values (continuously running values) are faked by the body's own statics or negative values are displayed (depending on the device). Moist to wet insulation materials are displayed relatively easily recognisable in the range of 20–100 digits. However, conversion into weight or volume percentages is not possible. It is important here that the insulation material is not completely penetrated. As the building material under the insulation material is usually already soaked beforehand, an incorrect value may be displayed if the measuring electrode is penetrated.

It is difficult to make a generally valid statement on the accuracy of measurement in relation to weight or mass percentages. Pure building materials with specific characteristic curves can be measured with good accuracy, whereas mixed masonry and laminates made of different materials are less accurate. However, exact percentages are often not necessary and so-called comparative measurements are completely sufficient.

7.6 Using the Hydromette BL Compact

When measuring wood moisture, the two measuring pins of the Hydromette must be pushed into the wood to be measured at right angles to the fibre direction. When removing them, light prying movements can be used at right angles to the grain to loosen the pins. Please refer also to the notes on wood moisture measurement in Sections [7.2](#) and [7.3](#). A wood type table can be found in the appendix.

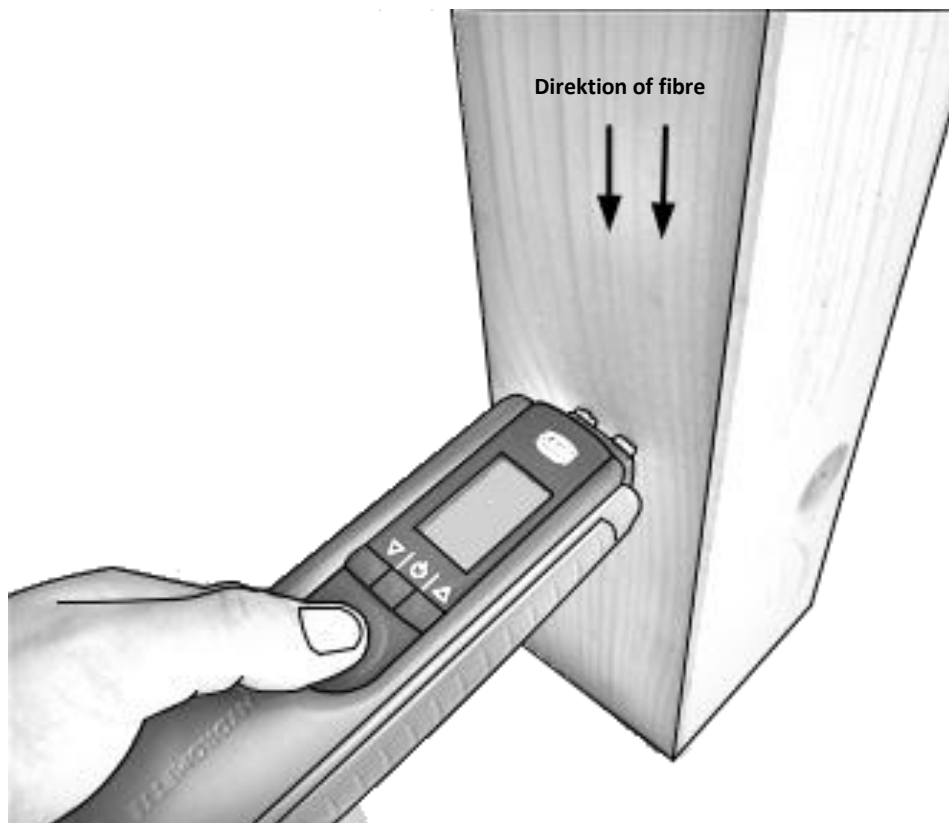


Figure 7-1: Wood moisture measurement – perpendicular to direction of fibres



INFORMATION

For a reliable measurement result, the measurement button must be pressed for at least two seconds. If the material is very dry, the measuring button must be pressed for up to eight seconds.

For measurements in the area of structural moisture, the use of the measuring device should be limited to soft building materials. We do not recommend pressing the electrode pins into hard building materials (screed, concrete, etc.). Please refer also to the notes on structural moisture measurement in Sections [7.4](#) and [7.5](#). The material table in the appendix provides orientation.



Figure 7-2: Structural moisture measurement – Plaster measurement

Care must be taken that the knurled screws are always sufficiently tightened to prevent measuring errors and the area between the pins is kept clean.

To change the electrode pins, the knurled screws must be unscrewed. The pins can then be easily replaced.

To use the Compact BI 175 and HW 175 screw-on stick-in electrode pairs, the knurled screws must first be unscrewed and removed. The electrode pairs can then be screwed on directly. Ensure that the electrode pairs are firmly seated.

8 Accessories



Compact BI 175 stick-in electrode pair

The Compact BI 175 stick-in electrode pair with insulated pins is suitable for measuring insulating materials, sound-proofing material, bulk material, etc.

The insulation allows layer and core moisture measurements to be carried out. Surface moisture is ignored.

-175 mm [length] (order-no. 31014352)



HW 175 stick-in electrode pair

The Compact BI 175 stick-in electrode pair with uninsulated pins is suitable for measuring insulating materials, sound-proofing material, wood wool, etc.

Not suitable for layer and core moisture measurements!

-175 mm [length] (order-no. 31014351)



Reorder electrode pins, packaging unit 100 pieces

-20 mm [length] (order-no. 31004600)

9 Appendix

9.1 Material Table

1	Wood type 1	15	Lime mortar
2	Wood type 2	16	Mixed plaster
3	Wood type 3	17	Gypsum plaster
4	Wood type 4	21	Styrofoam
69	Natural cork	22	Wood fibre insulation boards

9.2 Wood Types Table

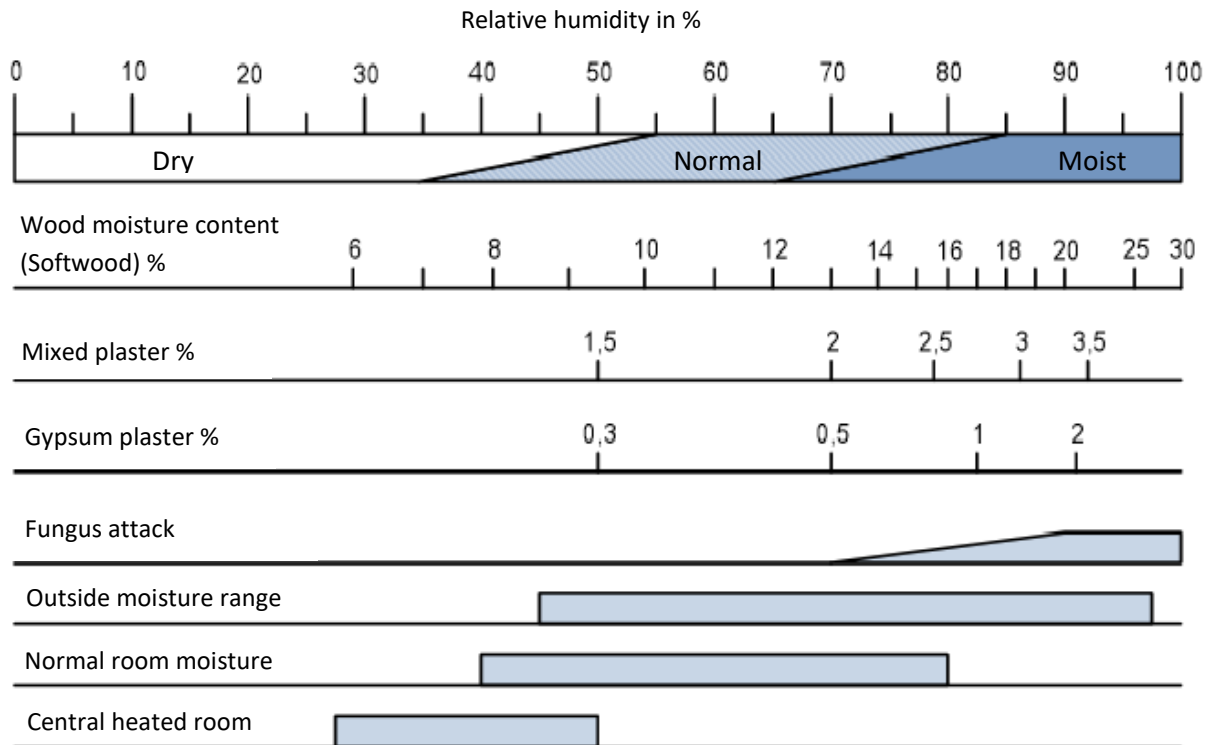
Wood type	Index	Wood type	Index
Obeche	2	Lime	2
Dibetou	4	Mahogany, true	3
Maple	3	Makore	3
Balsa	3	Meranti	3
Birch	3	Walnut	3
Pear tree	2	Okume. Gabon	2
Bubinga	4	Palisander	2
Beech, white-, red-	2	Poplar	3
Douglas fir	3	Ramin	2
Yew	3	Rubberwood	1
Oak	3	Sapelli	3
Oak red-, white-	2	Sitka spruce	3
Aider	3	Sipo	4
Ash	3	Fir	3
Spruce	3	Tchitola	1
Pine	3	Teak	2
Chestnut. Spanish-, Horse-	3	Elm	3
Cherry	3	Weymouth pine	3
Larch	3	Zebrano	1
Limba	3	Stone pine	3

9.3 Wood Temperature Compensation Table

		Measured values													
		4	5	6	7	8	9	10	11	12	13	14	15	16	17
Wood temperature in °C	-10	7.0	8.5	9.5	11.0	12.0	13.5	14.5	16.0	17.0	18.5	19.5	20.5	22.0	23.0
	- 5	6.5	7.5	9.0	10.0	11.0	12.5	13.5	15.0	16.0	17.5	18.5	19.5	20.5	22.0
	0	6.0	7.0	8.5	9.5	10.5	11.5	13.0	14.0	15.0	16.5	17.5	18.5	19.5	21.0
	+5	5.5	6.5	7.5	8.5	9.5	11.0	12.0	13.0	14.0	15.0	16.5	17.5	18.5	20.0
	+10	5.0	6.0	7.0	8.0	9.0	10.5	11.5	12.0	13.0	14.0	15.5	16.5	17.5	19.0
	+15	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	16.5	18.0
	+20	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
	+25	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	16.5
	+30	3.0	4.0	5.0	6.0	7.0	8.0	9.0	9.5	10.5	11.5	12.5	13.5	14.5	15.5
	+35	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.0	10.0	11.0	12.0	13.0	14.0	15.0
	+40	2.5	3.5	4.0	5.0	6.0	7.0	7.5	8.5	9.5	10.5	11.5	12.0	13.0	14.0
	+45	2.0	3.0	3.5	4.5	5.5	6.5	7.5	8.0	9.0	10.0	11.0	11.5	12.5	13.0
	+50	2.0	2.5	3.0	4.0	5.0	6.0	7.0	7.5	8.5	9.5	10.5	11.0	12.0	12.5
	+55	1.5	2.5	3.0	4.0	5.0	5.5	6.5	7.0	8.0	9.0	9.5	10.5	11.5	12.0
	+60	1.0	2.0	2.5	3.5	4.5	5.0	6.0	6.5	7.5	8.5	9.0	10.0	10.5	11.5
		real wood moisture in %													

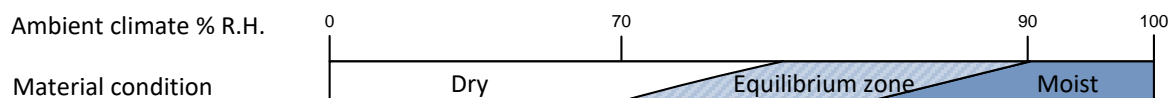
		Measured values													
		18	19	20	21	22	23	24	25	26	27	28	29	30	
Wood temperature in °C	-10	24.5	25.5	27.0	28.0	29.5	30.5	32.0	33.0	34.5	35.5	36.5	38.0	39.0	
	- 5	23.0	24.0	25.5	26.5	28.0	29.0	30.5	31.5	32.5	34.0	35.0	36.0	37.0	
	0	22.0	23.0	24.5	25.5	26.5	27.5	29.0	30.0	31.0	32.5	33.5	34.5	35.5	
	+5	20.5	21.5	23.0	24.0	25.0	26.0	27.5	28.5	29.5	31.0	32.0	33.0	34.0	
	+10	19.5	20.5	22.0	23.0	24.0	25.0	26.0	27.0	28.0	29.5	30.5	31.5	32.5	
	+15	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0	27.0	28.0	29.0	30.0	31.0	
	+20	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0	27.0	28.0	29.0	30.0	
	+25	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0	27.0	27.5	29.0	
	+30	16.5	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	25.5	26.5	27.5	
	+35	16.0	16.5	17.5	18.0	19.0	20.0	21.0	22.0	23.0	24.0	24.5	25.5	26.5	
	+40	15.0	15.5	16.5	17.5	18.5	19.5	20.0	21.0	22.0	23.0	23.5	24.5	25.5	
	+45	14.0	15.0	15.5	16.5	17.5	18.5	19.0	20.0	21.0	22.0	22.5	23.5	24.5	
	+50	13.5	14.5	15.0	16.0	17.0	18.0	18.5	19.5	20.5	21.0	22.0	22.5	23.5	
	+55	13.0	13.5	14.5	15.0	16.0	17.0	17.5	18.5	19.5	20.0	21.0	21.5	22.5	
	+60	12.5	13.0	14.0	14.5	15.5	16.5	17.0	18.0	19.0	19.5	20.5	21.0	22.0	
		real wood moisture in %													

9.4 Comparison Graph of Humidity – Material Moisture Content



Notes on graphic:

The areas shown in the graphic mean:



White zone: dry

Equilibrium moisture.

Pale zone: equilibrium zone

Caution! Non-diffusing coverings or adhesives should not be used. Please ask the respective manufacturer.

Dark zone: moist

Machining or processing at very high risk!

9.5 General Concluding Remarks

The notes and tables in these operating instructions on permitted or normal humidity conditions in practice and the general definitions of terms have been taken from the specialist literature. No responsibility can therefore be taken by the manufacturer of the measuring device for the correctness of this information.

The conclusions to be drawn from the measurement results are related to the individual conditions and the knowledge from professional experience for each user. In cases of doubt, for example concerning the permitted moisture content in coating or screed substrates when laying floor coverings it is recommended to contact the manufacturer of the coating or floor covering and to take account of the recommendations of the trade associations/guilds.

Please note:

The instructions for use for the device and any accessories should be carefully observed, as supposed simplifications in handling often lead to measurement errors.

-Subject to technical changes-

Status: July 2024



GANN MESS- U. REGELTECHNIK GMBH

70839 GERLINGEN SCHILLERSTRASSE 63 INTERNET: <http://www.gann.de>

Verkauf National: TELEFON 071 56-49 07-0 TELEFAX 071 56-49 07-40 E-MAIL: verkauf@gann.de

Verkauf International: TELEFON +49-71 56-49 07-0 TELEFAX +49-71 56-49 07-48 E-MAIL: sales@gann.de

10 EU Declaration of Conformity



Document no. / order no.: 30012010

Product identifier: **HYDROMETTE BL Compact**

We declare that the hand-held meter and related accessory correspond with the protection requirements and if used according to their intended purpose, comply with the requirements of the directives:

2014/30/EU EMC Directive

2011/65/EU RoHS

Applied harmonized standards:

EN 61326-1 : 2013 General EMC requirements

EN IEC 63000 : 2018 Restriction of hazardous substances

This declaration is given in responsibility for:

Gann Mess- und Regeltechnik GmbH

Schillerstr. 63

70839 Gerlingen

Germany

issued by:

name: Michael Gann

Position in the company of manufacturer: Managing Director

Place / date: Gerlingen, 12 December 2024



(Legally valid signature)