



# Laserliner MoistureMaster Compact Plus Professional Material Moisture Measuring Device Instruction Manual

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**Laserliner**

**Laserliner MoistureMaster Compact Plus Professional Material Moisture Measuring Device**



## MoistureMaster Compact Plus

The MoistureMaster Compact Plus is a handheld device that is used to measure the moisture content in various materials. The device uses a capacitive measuring method to determine the moisture content of different materials such as wood, cement screed, anhydrite screed, plaster, gas concrete, and other building materials.

## Product Usage Instructions

1. Read through the operating instructions and warranty before using the MoistureMaster Compact Plus.
2. Insert a 9V battery (6LR61 9V) into the device and ensure it is properly installed.
3. Press the ON/OFF button to turn on the device.
4. Select the desired mode by pressing the navigation buttons. The available modes are Wood, Cement screed, Anhydrite screed, Index mode, and Index Zoom mode.
5. Place the device on the material to be tested and press it firmly against the surface.
6. Wait for the device to display the moisture content on the Bargraph display or the Max value display.
7. The Nass/Trocken LED display will indicate if the material is wet or dry. Yellow indicates dampness, while red indicates excessive moisture.
8. Adjust the device settings as needed using the navigation buttons. You can set the Dry and Wet limits in Index mode and Index Zoom mode, and enable or disable AutoHold.
9. After two minutes of inactivity, the device will automatically shut off to conserve battery life.

For more information on product safety and disposal, please visit <http://laserliner.com/info?an=momacopl>

## MoistureMaster Compact Plus

Completely read through the operating instructions, the "Warranty and Additional Information" booklet as well as the latest information under the internet link at the end of these instructions. Follow the instructions they contain.

This document must be kept in a safe place and passed on together with the device.

### **Function/application**

This material moisture measuring device operates in accordance with the capacitive measuring principle. Material moisture is measured by 2 conductive sensor pads on the underside of the device and calculated in % with internal material-dependent characteristics. The displayed value shown in % refers to the dry mass. Example: 1 kg of material containing 500 g of water = 100% relative material moisture. MoistureMaster Compact Plus is used to determine the moisture content in wood, cement screed CT-C30-F4 DIN

EN 13813, anhydrite screed CAF-C25-F5, aerated concrete DIN4165 PP2-0.35/0.09, plaster as per DIN EN 13279-1 / plaster thickness = 10 mm, concrete C20/25 and lime-sand brick 12-1.8 in a non-destructive manner.

The integrated building materials characteristics correspond to the specified building materials and their designation. Building materials of the same type but with different designation/composition/strength/density can however affect the measurement result. Furthermore, building materials will vary from manufacturer to manufacturer due to the way they are produced. This is why, in the event of different product compositions or unfamiliar construction materials, a one-off comparative moisture measurement should be taken using methods that can be calibrated (e.g. kiln-drying method). If different measured values occur, they should either be viewed relatively or the index mode for moisture/drying behaviour should be used.

### **General safety instructions**

- The device must only be used in accordance with its intended purpose and within the scope of the specifications.
- The measuring tools and accessories are not toys.  
Keep out of reach of children.
- Modifications or changes to the device are not permitted, this will otherwise invalidate the approval and safety specifications.
- Do not expose the device to mechanical stress, extreme temperatures, moisture or significant vibration.
- The device must no longer be used if one or more of its functions fail or the battery charge is weak.

### **Safety instructions**

#### Dealing with electromagnetic radiation

- The measuring device is equipped with a wireless interface.
- The measuring device complies with electromagnetic compatibility and wireless radiation regulations and limits in accordance with the RED 2014/53/EU.
- Umarex GmbH & Co. KG hereby declares that the MoistureMaster Compact Plus radio equipment complies with the essential requirements and other provisions of the European Radio Equipment Directive 2014/53/EU (RED).

The EU Declaration of Conformity can be found in its entirety at the following address:

<http://laserliner.com/info?an=momacopl>

### **Information on maintenance and care**

Clean all components with a damp cloth and do not use cleaning agents, scouring agents and solvents. Remove the battery(ies) before storing for longer periods. Store the device in a clean and dry place.

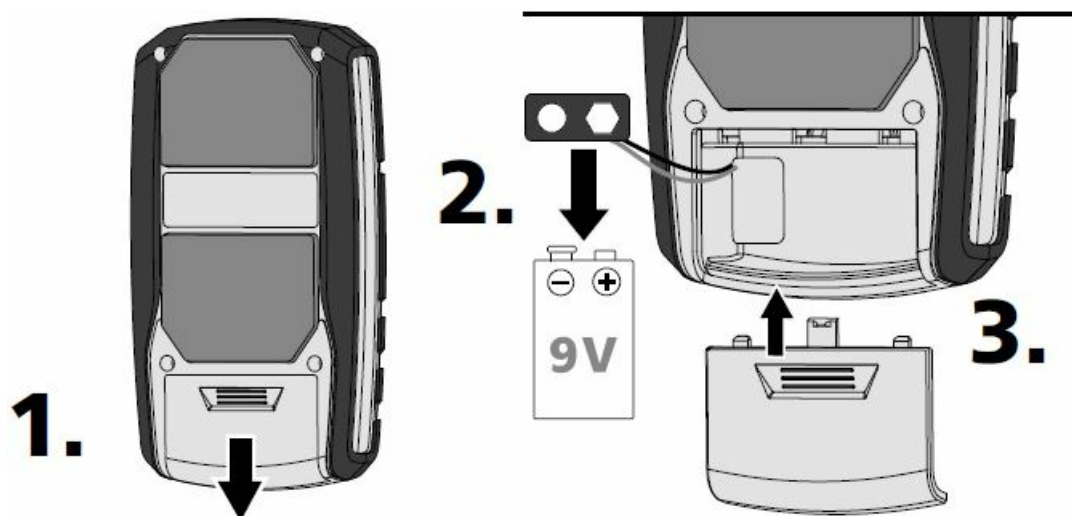
### **Calibration**

The meter needs to be calibrated and tested on a regular basis to ensure it produces accurate measurement

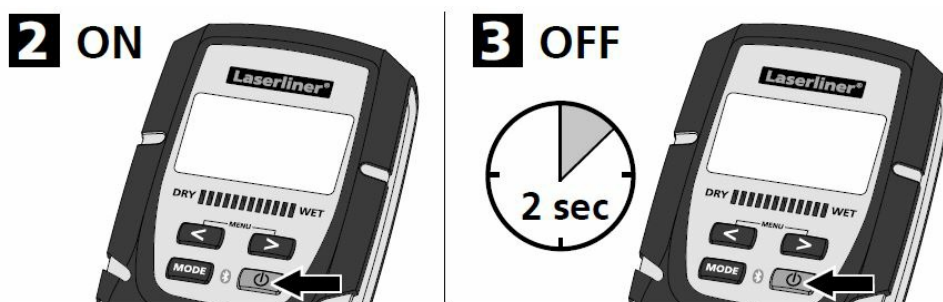
results. We recommend carrying out calibration once a year.

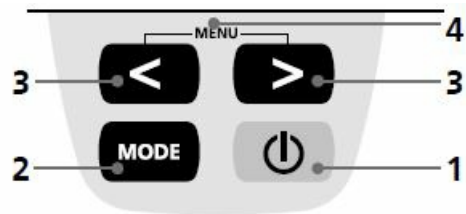
### Insert battery

Open the battery compartment on the housing's rear side and insert a 9V battery (6LR61 9V). Correct polarity must be observed.



Automatic switch-off after 2 minutes.

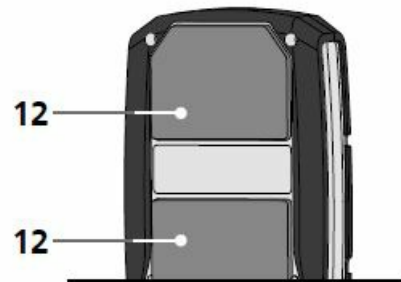




Display "measured value"



Display "bar graph"

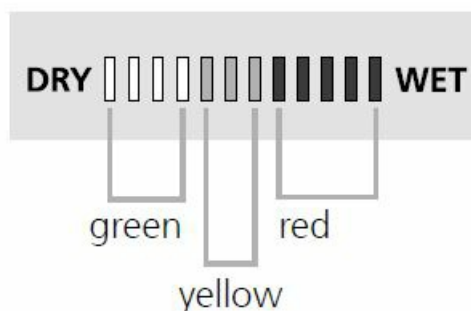


1. ON/OFF
2. Switch to wood, building material, CM, index, index zoom mode; confirm selection
3. Navigation buttons
4. Select language;  
 DRY limit setting;  
 WET limit setting;  
 AutoHold on/off
5. Selected material group
6. Measured value as % of relative material moisture
7. Selected material
8. Battery charge
9. Maximum measured value
10. Measurement scale
11. Bar graph
12. Sensor pads

#### Wet/dry LED display 12-position LED:

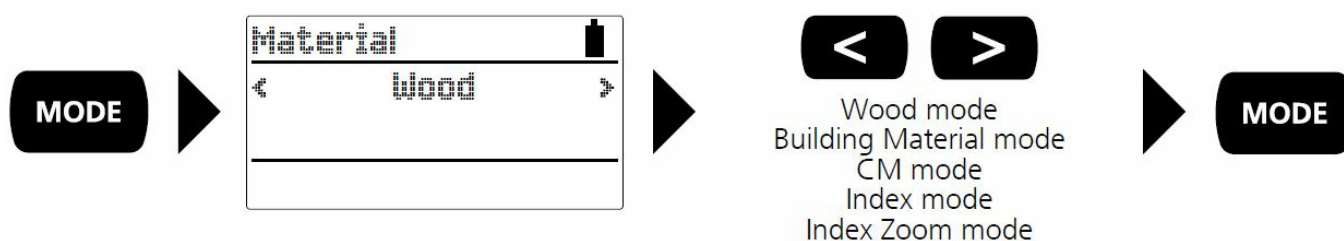
- 12-position LED:
- 0...4 LEDs green = dry

- 5...7 LEDs yellow = moist
- 8...12 LEDs red = wet

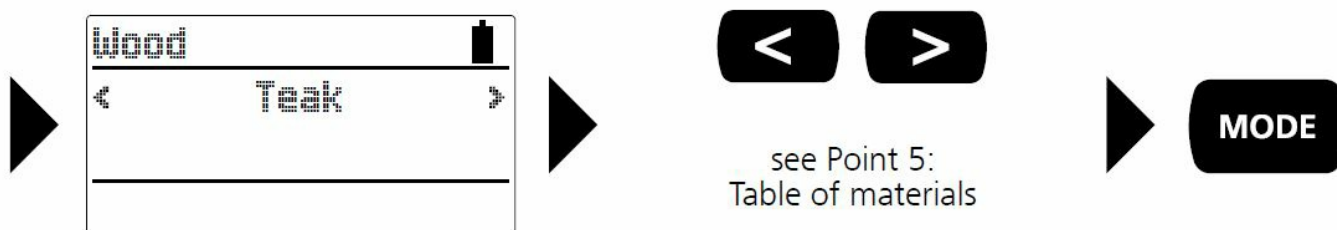


### Selecting the material

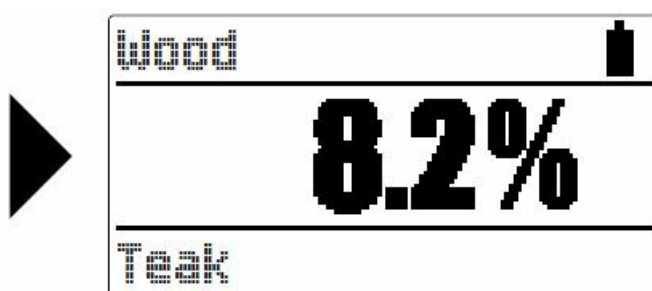
The device features 5 modes for measuring moisture, depending on the material in question. Press the “MODE” button to view the available types of wood, kinds of construction material, CM mode and the index mode / Index Zoom mode (which is independent of the material type). Use the arrow buttons to select the relevant material group and confirm your selection by pressing the “MODE” button.



Depending on your selection you will now be presented with a variety of woods or construction materials, which can also be selected using the arrow buttons and confirmed via the “MODE” button. Complete lists of all these materials can be found in the tables on the next page.



Once the material has been selected, the chosen mode will appear at the top of the display and the corresponding material at the bottom. The current measured value as a % of the material moisture can be read from the centre of the display.



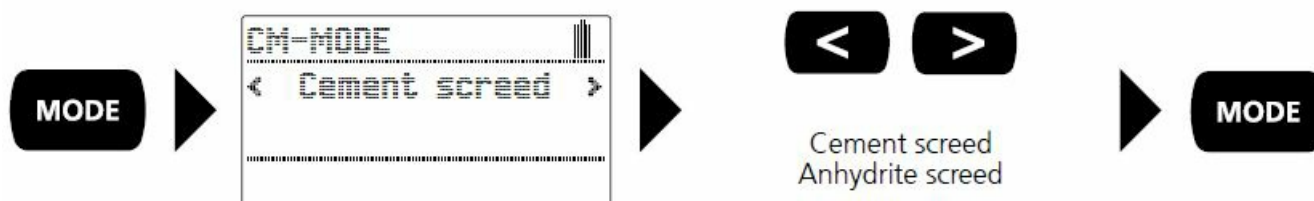
### Tables of materials

CM mode		
Cement screed		Anhydrite screed

Types of construction material									
Cement screed		Anhydrite screed		Plaster		Aerated concrete		Concrete	
									Lime malm brick

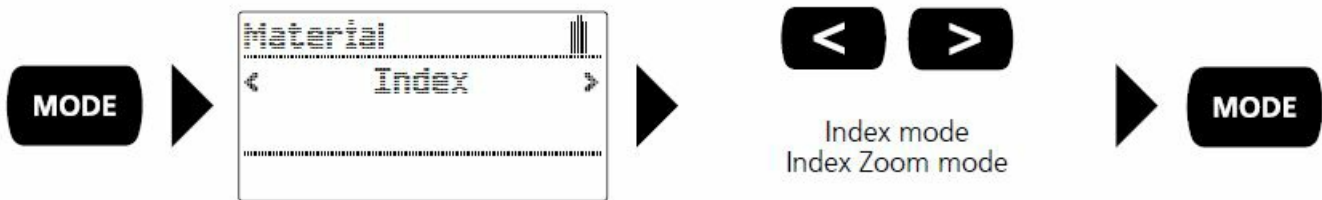
Types of wood					
Afrormosia		Cherry, American		Merbau	Sitka spruce
Azelia		Cherry, European		Mesquite	Small-leaved lime
Alaska cedar, yellow cedar		Common beech		Mutenye	Spruce
		Dark-leaved willow		Oak	Swiss pine
Ash		Douglas fir		Pecan	Sycamore
Aspen		Eastern white pine		Pine	Teak
Basralocus		Elm		Plum wood	Walnut
Birch		Hemlock		Red cedar	White ash
Black alder		Iroko		Red elm	White beech
Black maple		Khaya mahogany		Red maple	White meranti
Black walnut		Larch		Red oak	White oak
Blue catalpa tree		Light red meranti		Redwood	Yellow birch
Buckeye		Limba		Robinia	
Cedar		Longleaf pine		Silver fir	
Cherry mahogany		Mahogany		Silvertop or black ash	

## CM mode



CM mode evaluates the material moisture level comparable with the calcium carbide method. This method is based on a chemical principle where the moisture levels of building material samples are checked in a pressure vessel. With the non-destructive electronic measuring method, the MoistureMaster-Compact Plus shows the comparable value in CM% in CM mode.

## Index mode / Index Zoom mode

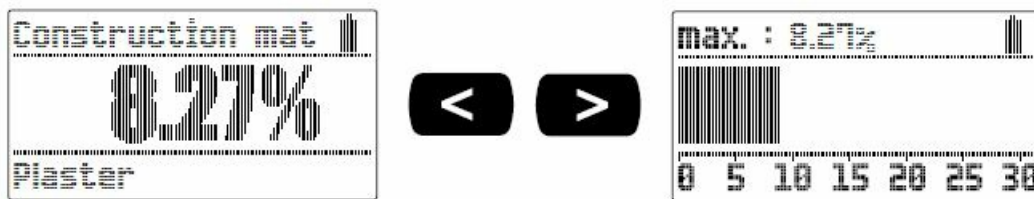


Index mode is used to rapidly locate moisture with comparative measurements, without a direct output of material moisture in %. The output value (0 through 1000) is an indexed value that increases as material moisture becomes greater. Measurements made in index mode are independent of material type and particularly useful with materials for which no characteristics are stored. When comparative measurements reveal strongly deviating values, the course of moisture in the material can be localized quickly. Index Zoom mode has been specially developed for hard building materials such as screed and concrete in order to track the drying progression of these materials. Index Zoom mode provides higher resolution in a specific measuring range.

Tip: Before using Index mode on hard building materials, first try out Index Zoom mode as this mode provides a higher resolution. Switch to Index mode when Index Zoom mode reaches the lower measuring range (measured value = 0).

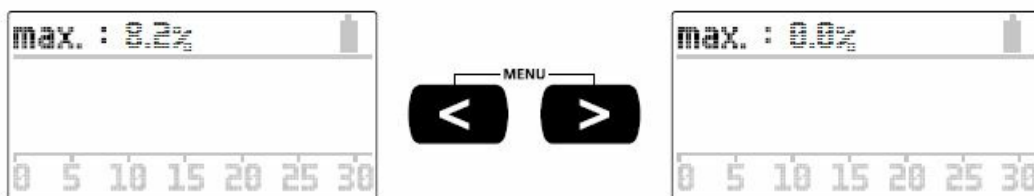
### Bar graph display

The display can be toggled between measured values and a bar graph by pressing the arrow buttons. The bar moves from left to right as the moisture level increases. The maximum value is also calculated. The arrow buttons can be used to switch back to the measured value display at any time.



### MAX value

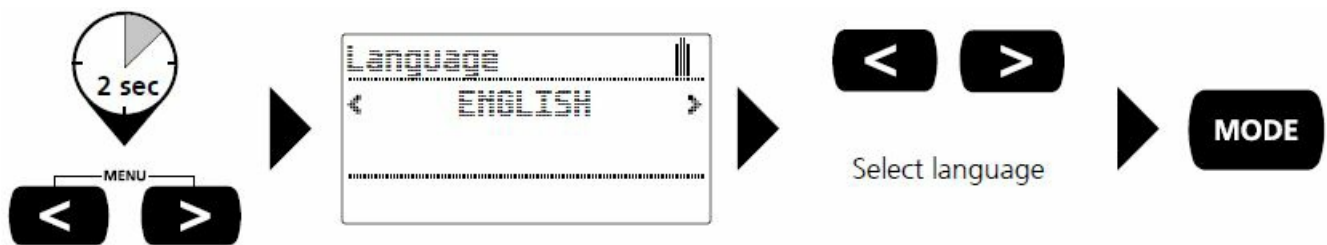
The MAX value is the maximum measured value within a single measurement. Press both arrow buttons at the same time to reset the MAX value to zero. Do make sure that the Sensor pads on the rear of the device do not come into contact with the material being measured or with your hands when you press these buttons.



### Menu language

To access the menu, simultaneously press and hold the two arrow buttons in the "measured value" display. Now you can use the arrow buttons to set the required language; confirm your selection with "MODE".

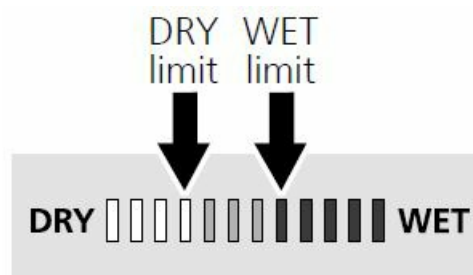




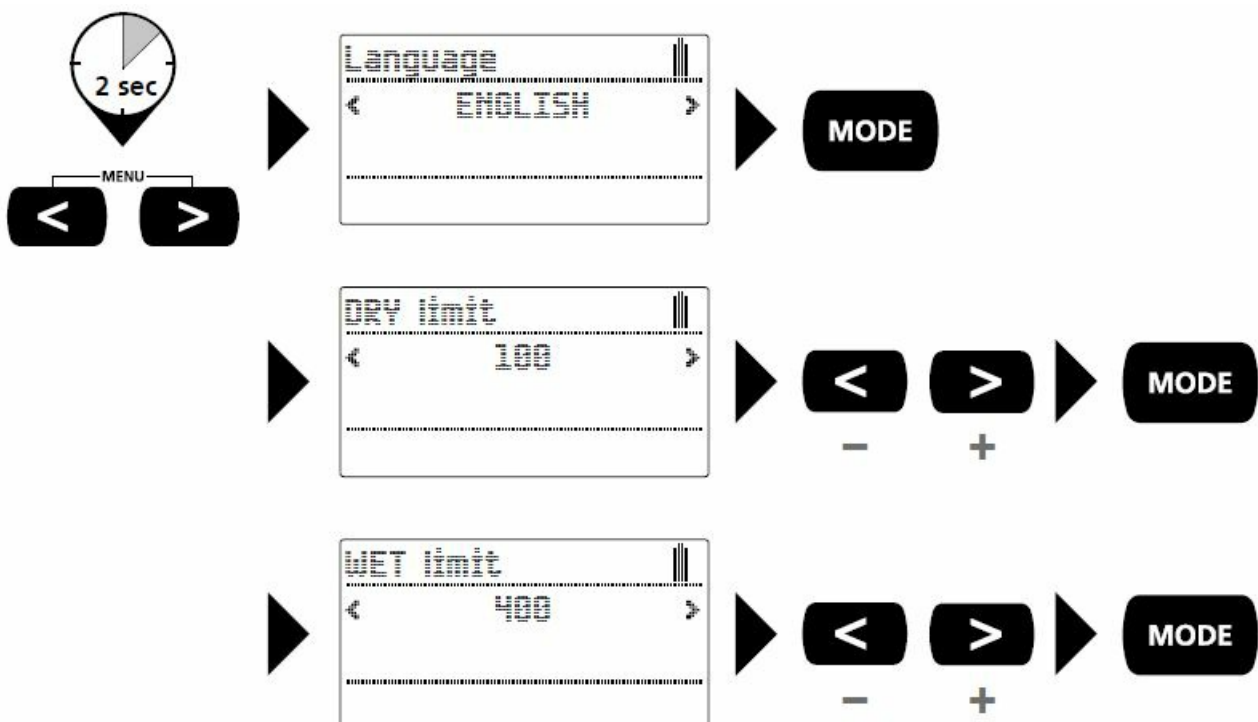
### Setting the wet/dry threshold values in index mode and Index Zoom mode

The wet/dry LED indicator is programmed in line with the relevant material characteristics so the LEDs also provide information about whether the material should be classified as dry, moist or wet. However the values in index mode and Index Zoom mode, which is independent of the material type, are output on a neutral scale whose value increases as the moisture level rises.

The LED indicator can be specifically programmed for index mode and Index Zoom mode by defining the end values for “dry” and “wet”. The difference between the value set for “dry” and that set for “wet” is converted and displayed by the 12 LEDs.



To access the menu, simultaneously press and hold the two arrow buttons in the “measured value” display. Press the “MODE” button to set the value for “dry” (Dry Limit). Press “MODE” again to set the value for “wet” (Wet Limit).



### AutoHold

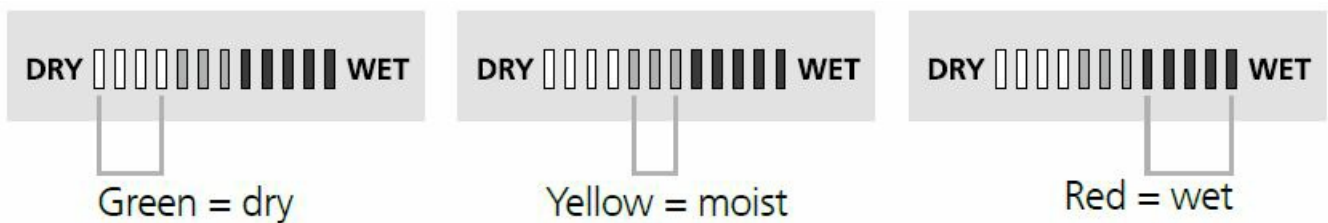
The AutoHold function is activated as standard and can be deactivated in the menu. With AutoHold activated, as soon as the measured value is stable it is automatically held on the display. This status is signalled acoustically and indicated by a symbol on the display. With AutoHold deactivated, the measured value is continuously updated on the display.



Tip: The AutoHold function is suitable for measurements with no movement. Switch off the AutoHold function for scanning walls.

## Wet/dry LED indicator

In addition to numeric measurement display in % of relative material moisture, the LED display also provides a material-dependent evaluation of moisture. The LED display bar becomes larger, from left to right, with increasing moisture content. The 12-position LED display is subdivided into 4 green (dry), 3 yellow (moist) and 5 red (wet) segments. Wet material causes an additional acoustic signal.



The classification “dry” means that materials in a heated room have reached a balanced moisture level and are thus suitable for further processing.

## Application notices



Place the device such that the sensor pads fully rest on the material to be measured and exert a pressure of about 2.5 kg onto the surface to be measured.

**TIP:** Use scales to test the contact pressure.



Always hold and press down the measuring device in the same way (see illustration).

- Make sure that the sensor pads make good contact with the material with no air inclusions.
- The contact pressure compensates for unevenness of the surface and small dust particles.
- Measured surface should be free of dust and dirt
- Always take spot measurements while exerting a contact pressure of 2.5 kg.
- For quick checks, while exerting light pressure, you can slide the device over the surface. (Look out for nails and pointed objects! Danger of injury and damage to sensor pads!) Measure again at the highest deflection point while applying 2.5 kg contact pressure.
- Keep at least a 5 cm distance from metal objects
- Metal pipes, electric lines and reinforcing steel can falsify measurement results
- Always measure at several different spots

The operating principle of the device can only determine the material moisture measurement in % and show the moisture content on the LED display when the material matches the specified internal material characteristics. Plaster with wallpaper: Wallpaper affects the measurement to such an extent that the displayed value is falsified. Nevertheless, the reading can still be used to compare the measurement at this spot with the measurement at another spot. The same is true of tiles, linoleum, vinyl and wood used to cover building materials. In some cases the measuring device can measure through these materials as long as they contain no metal. The reading should however be taken as a relative measured value.

**Plaster:** Plaster mode is configured for a plaster thickness of 10 mm applied on concrete, lime-sand brick, cellular concrete.

**Wood:** The measured depth in wood is 30 mm maximum but does vary somewhat with differing wood densities. Measurements made on thin wood boards should, if possible, be made on a stack of these boards as otherwise the measurement will be too low. Measurements made on installed wooden structures are influenced by the structural conditions and their chemical treatments (e.g. paints) with various materials. Thus such measurements should only be viewed relatively.

Maximum accuracy is achieved between 6% and 30% wood moisture. In very dry wood (< 6 %) irregular moisture distribution can be detected, in very wet wood (> 30 %) saturation of the wood fibres begins.

Material relative moisture reference values, in %, for use with wood:

- Outdoor usage: 12% ... 19%
- Use in unheated rooms: 12% ... 16%
- In heated rooms (12 °C ... 21 °C): 9% ... 13%

- In heated rooms (> 21 °C): 6% ... 10%

This moisture measuring device is a sensitive tool. This means that the measurement results may be subject to slight deviations when someone touches the device with their hand or when contact is broken between the device and the material being measured. However, contact with the user's hand forms the basis for calibrating the measuring device, so we recommend holding onto the device whilst taking your measurements.

Functional and operational safety is only warranted when the instrument is operated within the specified climatic conditions and is only used for those purposes for which it is designed. The assessment of measurement results and actions taken as a consequence lie in the user's scope of responsibility, depending on the given type of work.

### Data transfer

The device features a Bluetooth®\* function that enables wireless data transfer to mobile devices with a Bluetooth®\* interface (such as a smartphone or tablet).

The system prerequisites for a Bluetooth®\* connection are specified at <http://laserliner.com/info?an=momacopl>

The device can set up a Bluetooth®\* connection with Bluetooth 4.0 compatible devices.

The range is set to a maximum distance of 10 m from the terminal device and greatly depends on the ambient conditions such as the thickness and composition of walls, sources of interference as well as the transmit / receive properties of the terminal device.

Once it has been activated, Bluetooth®\* remains switched on indefinitely as the radio system is designed with exceptionally low power consumption.

A mobile device can link up to the active measuring device via an app.

### Application (app)

An app is required to use the Bluetooth®\* function. You can download the app from the corresponding stores for the specific type of terminal device:



Make sure that the Bluetooth®\* interface of the mobile device is activated.

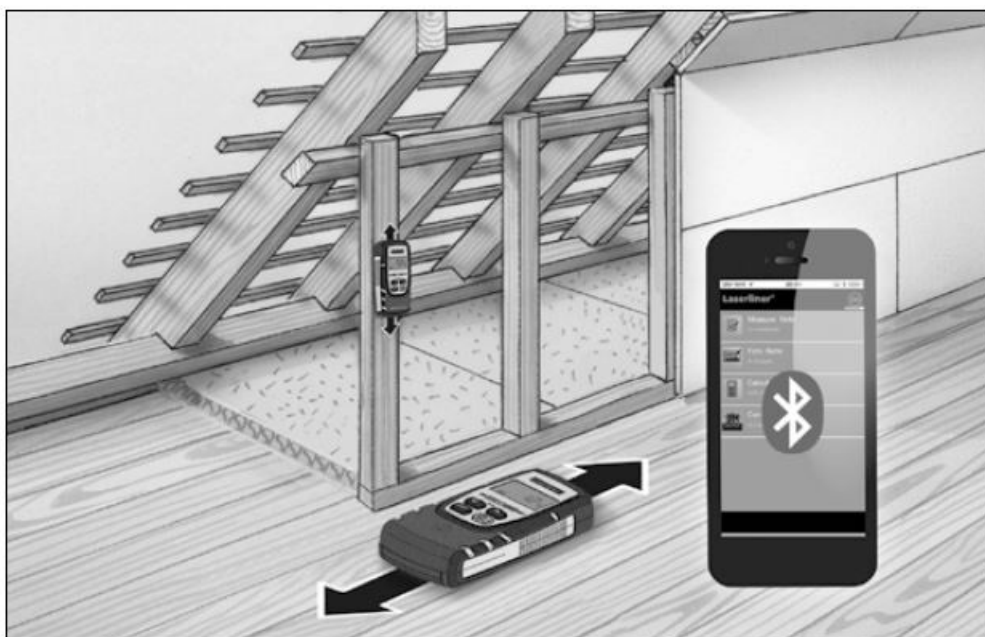
After starting the app and activating the Bluetooth®\* function, a connection can be set up between a mobile device and the measuring device. If the app detects several active measuring devices, select the matching device.

This measuring device can be connected automatically the next time it is switched on.

\* The Bluetooth® word mark and the logo are registered trademarks of Bluetooth SIG Inc.

### Technical data

Technical data	
Measurement principle	Capacitive measuring principle
Material characteristics	8 building materials characteristics 56 wood characteristics
Measurement range	<p>Cement screed: 0%...5% Anhydrite screed: 0%...3,3% Plaster: 0%...23,5%</p> <p>Aerated concrete: 0%...66,5% Concrete: 0%...5%</p> <p>Lime malm brick: 0%...5,5%</p> <p>Cement screed: 0%...3,8% CM mode Anhydrite screed: 0%...3,1% C M mode</p> <p>Wood: 0%...56,4%</p>
Accuracy	<p>Wood: <math>\pm 2\%</math></p> <p>Building materials: <math>\pm 0.2\%</math></p>
Operating conditions	0 ... 40°C, 85%rH, no condensation, max. altitude 2000 m
Storage conditions	-10 ... 60°C, 85%rH, no condensation
Radio module operating data	<p>Bluetooth LE 4.x interface</p> <p>Frequency band: ISM band 2400–2483.5 MHz, 40 channels; Transmission power: max. 10 mW Bandwidth: 2 MHz; Bit rate: 1 Mbit/s; Modulation: GFSK/FHSS</p>
Power supply	1 x 6LR61 9V
Automatic switch-off	after 2 min.
Dimensions	81 mm x 154 mm x 36 mm
Weight (incl. battery)	226 g



## EU directives and disposal

This device complies with all necessary standards for the free movement of goods within the EU.

This product is an electric device and must be collected separately for disposal according to the European Directive on waste electrical and electronic equipment.

Further safety and supplementary notices at: <http://laserliner.com/info?an=momacopl>

## SERVICE

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## Documents / Resources

	<p><a href="#">Laserliner MoistureMaster Compact Plus Professional Material Moisture Measuring Device</a> [pdf] Instruction Manual</p> <p>MoistureMaster Compact Plus Professional Material Moisture Measuring Device, MoistureMaster Compact Plus, Professional Material Moisture Measuring Device, Material Moisture Measuring Device, Moisture Measuring Device, Measuring Device, Device</p>
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## References

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