

DampMaster / DampMaster Plus



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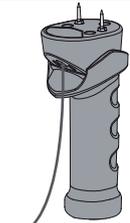
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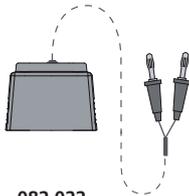
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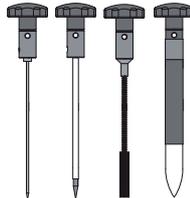
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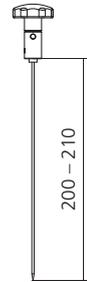
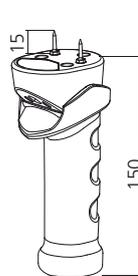
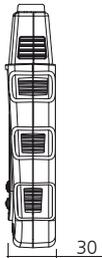
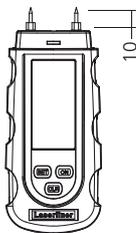
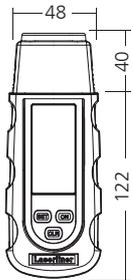
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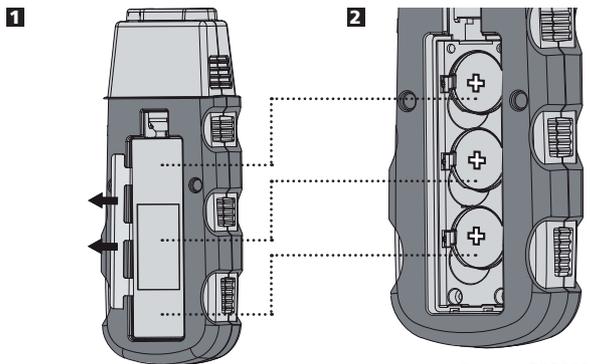
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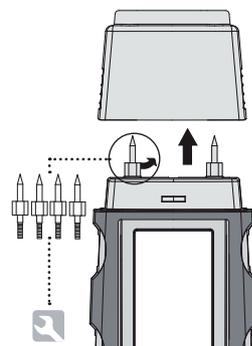
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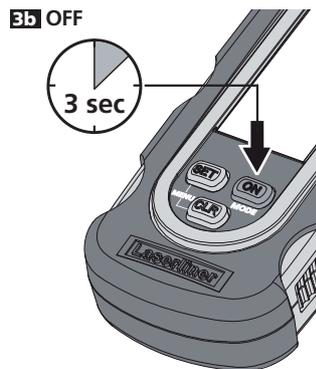
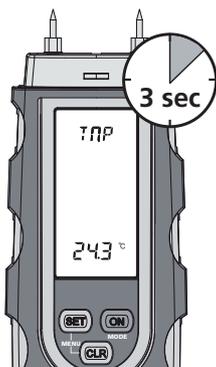
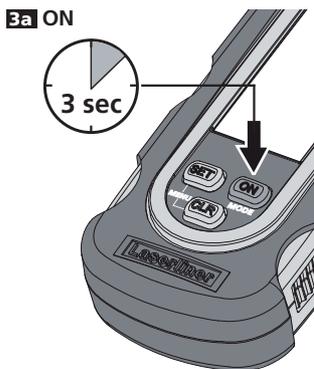
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Innovation in Tools



Lithium Batterie CR2032

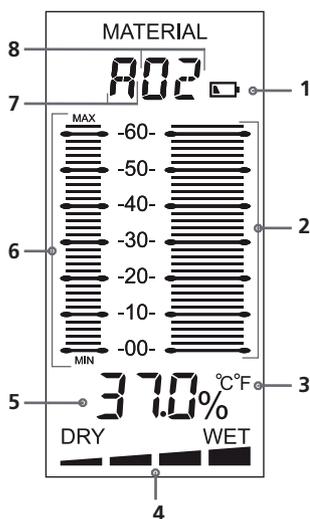


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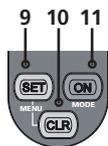


When the device is turned on, the display will show the ambient temperature for 3 seconds.

Auto switch-off after 3 minutes.



- 1 Low battery charge
- 2 Measurement scale; bar-graph display of measured value
- 3 Temperature units of measure setting
- 4 Wet/dry indicator (programmable)
- 5 Numeric measurement value in %
- 6 Bar-graph display of measured MIN/MAX values
- 7 Wood groups (A, B, C)
- 8 Building materials (01, 02, 03, 04)



- 9 Change wood/building materials
- 10 Delete MIN/MAX values
- 9+10 Menu
- 11 Switch on device
Switch-over to building materials, Index mode, Test mode

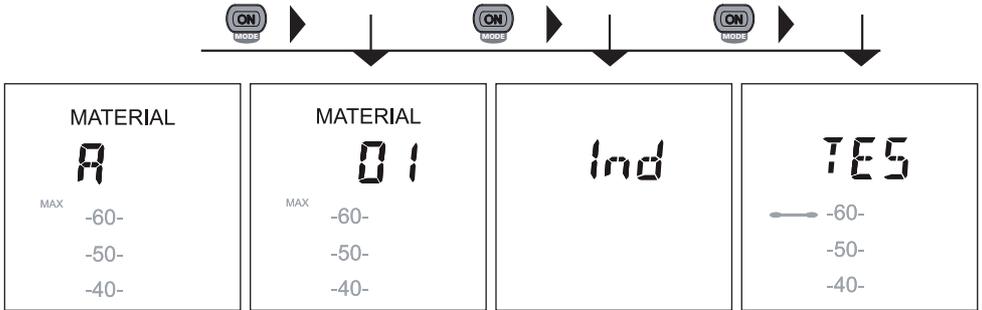
DampMaster / DampMaster Plus

Function/application:

This material moisture device detects and evaluates the material moisture content of wood and building materials by way of electric resistance measurement. The displayed value is material moisture in % with respect to dry mass.

Example: 100 % material moisture for 1 kg of wet wood = 500 g water.

4 Modes

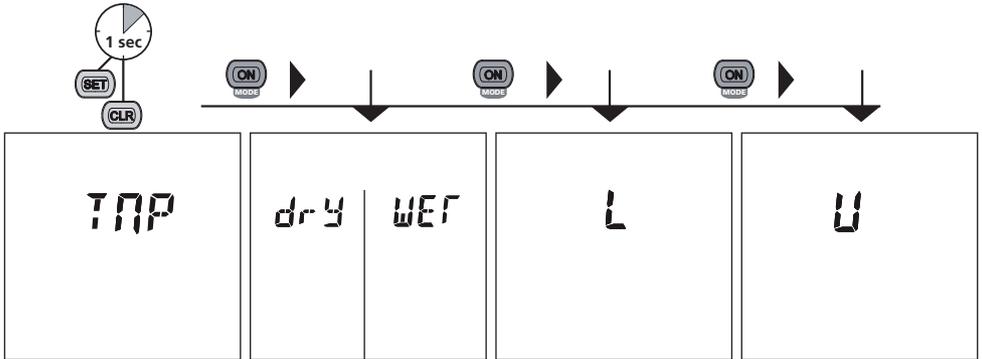


Wood groups: A, B, C

Building materials:
01, 02, 03, 04

Index mode

Test mode



Manual temperature
compensation

Programmable
wet/dry indicator

Display illumination

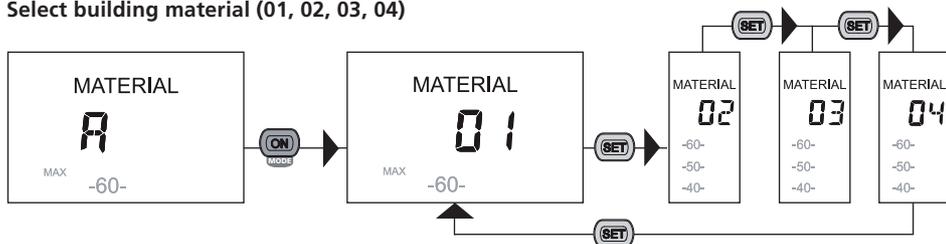
°C / °F switch-over

5 Select wood group (A, B, C)



Just which wood types are grouped under A, B and C can be found in the table in Section 10.

6 Select building material (01, 02, 03, 04)



Just which building materials are grouped under 01 to 04 can be found in the table in Section 11.

7 Measuring material moisture

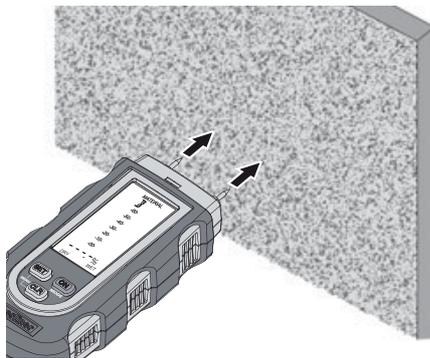
Be sure neither supply lines (electric lines, water pipes, etc) nor a metal subsurface is present at the location to be measured. Insert the electrodes as far into the material as possible but never use excessive or sudden impact force as this could damage the device. Always pull the device out of the material with left/right twisting motion. **Perform several comparative measurements at different locations** to minimise measurement error. The sharply pointed electrodes present an **injury hazard**. Always put the safety cap on the device when it is not in use or being transported.

8 Wood



The location to be measured should be untreated, free of knots, dirt and resin. Measurements should not be made on the end faces of wood because these areas dry particularly quickly such that they produce incorrect measurement results. **Perform multiple comparative measurements.** Wait until the % symbol stops blinking and remains constantly lighted. Only then are measurement values stable.

8 Mineral building materials



Be aware that walls (or surfaces) with differing material structures, or even variations in material composition, can cause measurement results to be falsified. **Perform multiple comparative measurements.** Wait until the % symbol stops blinking and remains constantly lighted. Only then are measurement values stable.

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Material characteristics

The material characteristics available for selection in the measuring device are listed in the tables below. The different types of wood are divided into Groups A ... C. Please set the measuring device for the respective group in which the type of wood to be measured is found (see Step 5). A similar setting must also be made for measurements performed on building materials (see Step 6). Building materials are divided into groups 01 through 04.

10

Wood			
A	B		C
Abachi	Agba	mahogany	Afromosia
Abachi	Maple	Pine	Rubber tree
Abura	Alder	Cherry wood	Imbuia
Afzela	Patagonian cypress	Kosipo	Kokrodua
Pear wood	Purpleheart	Larch	Niové Bidinkala
Black Afara	Andiroba	Limba	Tola - real, red
Parana pine	Aspen	Mahogany	Cork
Beech	Balsa	Cherry	Melamine particle board
Daberna	Basralocus	mahogany	Phenolic resin particle board
Ebony	Tree heath	Melèze	
Oak, red	Ebiara	Poplar (all)	
Oak, white	Birch	Plum wood	
Ash	Logwood	Pine	
Yellowheart	Juniper	Red sandalwood	
Ash - American	Beech - European hornbeam	Elm	
Ash - Japanese	Hornbeam - white	Maritime pine	
Hickory - silver poplar	Campeachy	English oak	
Hickory - swap	Aielé	Durmast oak	
Ilomba	Kapok	Tola	
Ipe	Douka	Tola - branca	
Iroko	Douglas fir	Walnut	
Small-leaved lime	Oak	Western red	
Small-leaved lime - American	Oak - holm,	Cedar	
Mockernut hickory	English, dumast	White maple	
Niangon	Emien	White birch	
Niové	Alder - red, black	White beech	
Okoumé	Ash	White poplar	
Rosewood	Spruce	Swiss pine	
Rio rosewood	Ash	Common aspen	
Common beech	Yellow birch	Damson wood	
Red oak	Southern yellow pine	Cypress, real	
Teak	Hornbeam	Fibre board	
Willow	Hickory - silver poplar	Wood fibre	
White oak	Hickory - poplar	insulating board	
Cedar	Izombé	Wood fibre	
Cypress - C. Lusit	Guanandi	hardboard	
Board	Jarrah	Kauramin	
	Elm	particle board	
	Kari	Paper	
	Chestnut - sweet, red	Textiles	
	African		

11

Building materials			
01	02	03	04
Gypsum plaster	Aerated concrete	Screed	Concrete

12 Wet/dry indicator

In addition to the measured value, a moisture evaluation will be displayed by the wet/dry indicator in the display. This indicator is tuned by the material characteristics (A, B, C; 01, 02, 03, 04) stored in the measuring device. This evaluation is subdivided into 5 steps and it makes an evaluation of the measured material easier. **The display is to be considered as a general indication and not a final evaluation.**



13 Index 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.

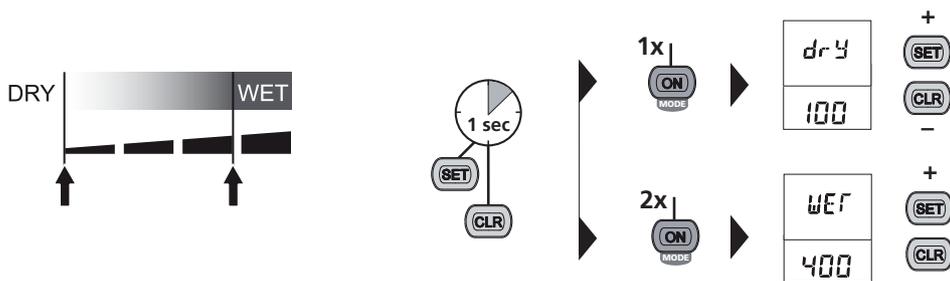
In addition to those materials with characteristics stored in the measuring device, index mode makes it possible to measure other building materials (05 ... 19), refer to the table at the right. The displayed value (0 through 1000) serves as the basis. Activate index mode in your measuring device (Step 13b). In order to determine the degree of moisture in a type of building material, first find the material number for the building material to be measured. Following this, read the measured value from the scale displayed on the measuring device for index mode. Now determine the value for the corresponding material number in the table. If this value has a dark grey background, the material is to be classified as „wet“, values without coloured background are considered to be „dry“.

13b



14 Programmable wet/dry indicator in index mode

The wet/dry indicator can be programmed to the already predefined values especially for index mode. This produces a new setting for the „wet“ and „dry“ threshold value (see arrows).



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Index mode conversion table				
05	06	07	08	09
anhydrite screed	ardurapid cement screed	B25 cement	B35 cement	Elastizel screed
10	11	12	13	14
gypsum screed	wood cement screed	lime mortar	DIN magnesium oxychloride flooring	expanded polystyrene
15	16	17	18	19
softboard (wood) with bitumen	cement bonded chipboard	cement screed with bitumen additive	cement screed with plastic additive	cement mortar

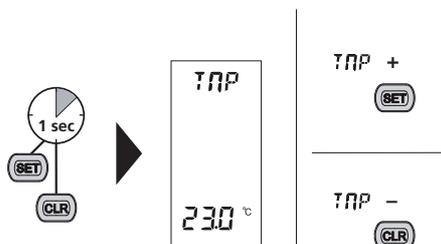
Index mode value	All values in material moisture %																		
	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19				
wet	863		2,9	2,8	3,0	13,4								4,8	6,0				
	802	5,8	2,4	2,3	2,9	11,7	6,4	16,0	19,2					4,6	4,5	7,0			
	758	4,5	2,0	2,0	2,7	10,3	4,5	14,2	12,0	16,5				4,5	4,1	5,5			
	711	3,1	1,9	1,8	2,5	8,7	3,0	12,8	9,5	15,5		24,0		4,4	3,7	4,7			
	662	2,1	1,8	1,7	2,5	7,3	2,5	11,7	7,3	14,9		23,6		4,2	3,5	4,0			
	608	1,5	1,6	1,7	2,4	6,4	2,4	11,0	6,4	14,4		23,3		4,0	3,4	3,7			
	593	1,4	1,6	1,6	2,4	6,2	2,3	10,8	6,0	14,2		22,8		4,0	3,4	3,6			
	564	1,2	1,6	1,6	2,4	5,8	2,0	10,5	5,5	14,0		22,4		3,9	3,4	3,4			
	544	1,1	1,5	1,5	2,3	5,5	1,9	10,3	5,1	13,8		22,0		3,9	3,3	3,4			
	522	1,0	1,5	1,5	2,3	5,3	1,8	10,0	4,5	13,5		21,5		3,9	3,3	3,2			
503	0,9	1,4	1,4	2,3	5,1	1,7	9,8	4,3	13,4		21,0		3,9	3,3	3,1				
486	0,8	1,4	1,4	2,2	4,9	1,6	9,7	4,0	13,3		20,5		3,8	3,2	3,0				
474	0,7	1,3	1,4	2,2	4,6	1,5	9,5	3,6	13,2		20,0		3,8	3,2	2,8				
441	0,6	1,3	1,3	2,2	4,4	1,4	9,4	3,5	13,0		19,5		3,8	3,2	2,7				
416	0,5	1,3	1,3	2,1	4,2	1,4	9,2	3,1	12,9		18,8		3,7	3,1	2,7				
400	0,4	1,2	1,3	2,1	4,0	1,3	9,0	2,9	12,7		18,0		3,7	3,1	2,6				
384	0,4	1,2	1,3	2,0	3,8	1,2	8,8	2,7	12,7		30,1	17,5	3,7	3,0	2,5				
363	0,3	1,1	1,2	2,0	3,5	1,1	8,6	2,5	12,6		29,1	17,0	3,6	3,0	2,4				
345	0,3	1,1	1,2	1,9	3,3	1,0	8,4	2,3	12,5		28,0	16,3	3,6	2,9	2,3				
330	0,2	1,1	1,2	1,9	2,8	0,9	8,1	2,1	12,4	25,0	27,0	15,5	3,6	2,9	2,3				
304	0,2	1,0	1,2	1,8	2,7	0,8	7,9	1,9	12,3	24,5	26,0	14,8	3,5	2,8	2,2				
287	0,2	1,0	1,1	1,8	2,5	0,7	7,7	1,8	12,1	23,8	25,0	14,2	3,5	2,8	2,1				
265	0,1	0,9	1,1	1,8	2,3	0,7	7,5	1,6	12,0	23,0	23,0	13,4	3,4	2,8	2,0				
242	0,1	0,8	1,0	1,7	2,0	0,6	7,3	1,4	11,9	21,0	21,0	12,8	3,4	2,8	1,9				
219		0,7	1,0	1,7	1,9	0,6	7,1	1,3	11,8	18,5	19,0	12,0	3,3	2,7	1,7				
204		0,7	1,0	1,6	1,8	0,5	6,8	1,2	11,7	17,3	17,0	11,0	3,3	2,7	1,6				
185		0,6	0,9	1,6	1,7	0,5	6,7	1,0	11,6	16,0	15,4	10,2	3,2	2,7	1,5				
161		0,6	0,9	1,5	1,6	0,5	6,5	0,9	11,5	13,2	13,1	8,7	3,2	2,6	1,4				
138		0,6	0,9	1,5	1,4	0,4	6,4	0,8	11,4	12,0	10,7	8,0	3,1	2,6	1,3				
120		0,5			1,4	0,4	6,2	0,7	11,3	9,5	8,9	6,5	3,1	2,5	1,2				
100		0,5			1,3	0,4	6,0	0,6	11,1	7,9	7,0	5,9	3,0	2,5	1,1				
85		0,5			1,2		5,8	0,5		7,5		5,4	3,0	2,5	1,1				
70		0,5					5,6	0,5		6,5		4,8	2,9	2,5	1,0				

14 Material temperature compensation

Relative material moisture is dependent on the temperature of the material. The device automatically compensates different material temperatures in that it measures ambient temperature and uses this measurement for its internal calculation.

However, the measuring device also offers an option for setting the temperature manually (see Step 14b) to increase measuring accuracy. This value is not stored and must be set again each time the device is switched on.

14b



15 LCD backlight

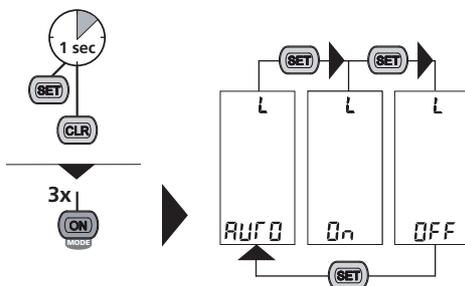
LED display illumination can be varied with 3 different settings:

AUTO: Display illumination switches off during periods of inactivity and switches on again automatically for measurement procedures.

ON: Display illumination remains on permanently.

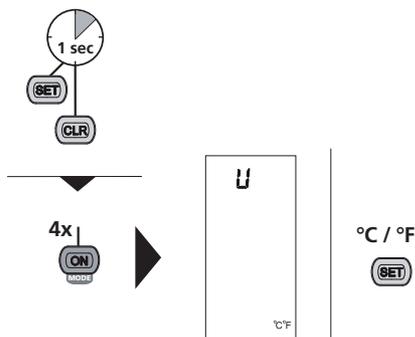
OFF: Display illumination remains off permanently.

The setting is stored and remains in effect until it is changed manually.



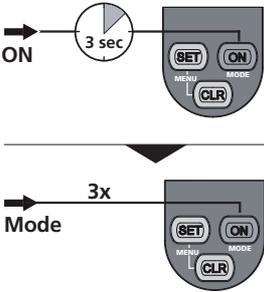
16 Temperature units of measure setting

The units of measure for ambient temperature and material compensation can be set to either °C or °F. The setting is stored and remains in effect until it is changed manually.

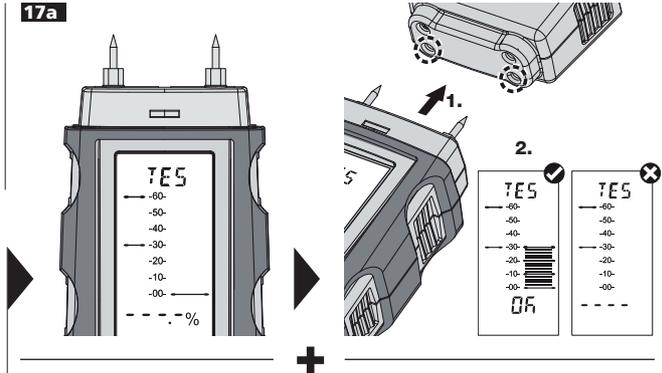


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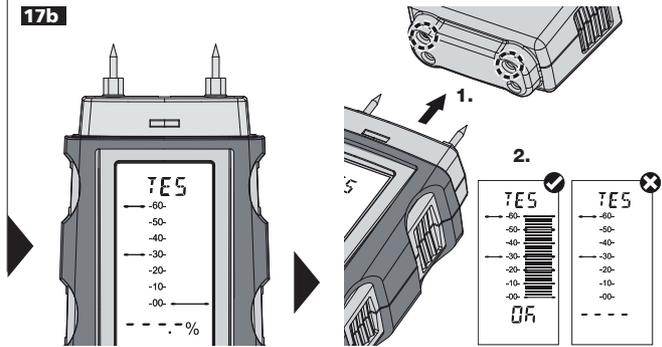
17 Self-test function



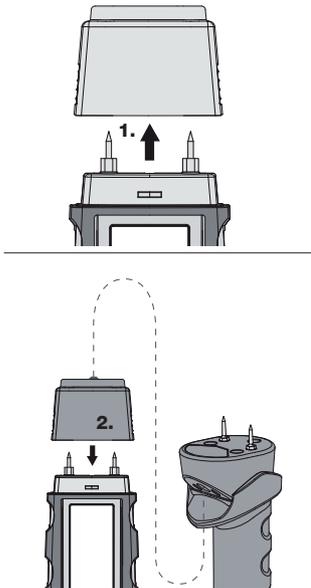
17a



17b

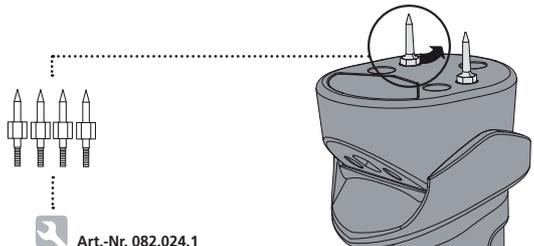


18 Connecting the external hand-held electrode (Art. No. 082.024)



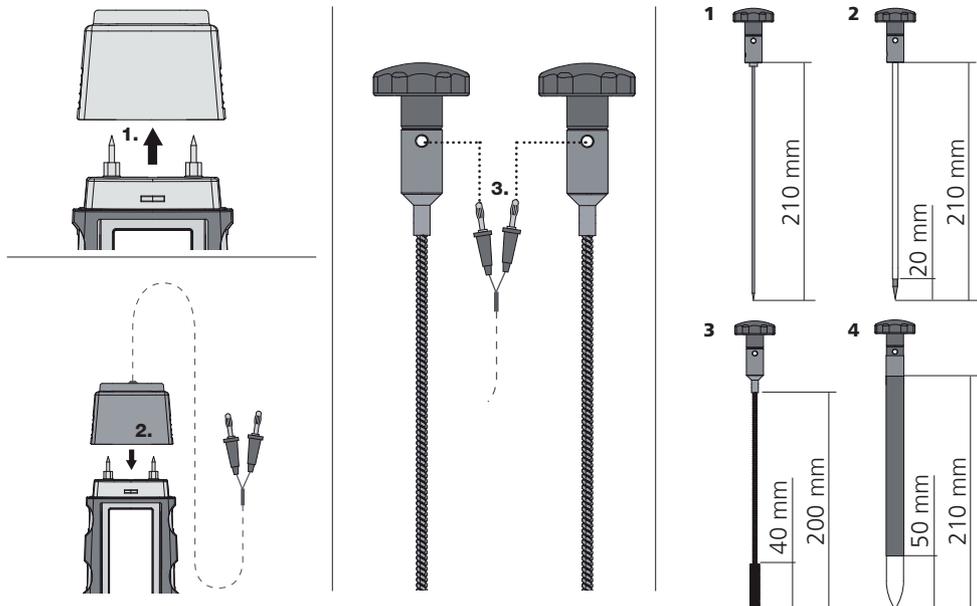
The external hand-held electrode is suitable for all types of wood and soft building materials. The self-test function can also be performed with the external hand-held electrode (see Step 17). Be sure the connecting cap is securely attached to the DampMaster. **When you are not using the hand-held electrode, always keep it stored in its carrying case to prevent injuries from being caused by the electrode spikes.**

Replacing the measuring spikes



Art.-Nr. 082.024.1

19 Connecting deep electrodes (Art.-No. 082.023) with connecting cable (Art.-No. 082.022)



Use of deep electrodes

- 1. Round deep-insertion electrode (non-insulated, \varnothing 2 mm)**
for moisture measurements in building and insulating materials or between joints or joint intersections.
- 2. Round deep-insertion electrode (insulated, \varnothing 4 mm)**
for moisture measurement in the concealed structure levels of multi-layer wall or ceiling structures.
- 3. Brush deep-insertion electrode**
for moisture measurement in a homogeneous building material. Contact is established by the brush tip.
- 4. Flat deep-insertion electrode (insulated, 1 mm flat)**
for targeted moisture measurement in the concealed structure levels of multi-layer wall or ceiling structures. Electrodes can, for example, be inserted through edge strips or at the wall-ceiling transition.

Applying deep electrodes

The spacing of bore holes should be between 30 and 50 mm and be \varnothing 6 mm for brush electrodes. After boring the hole, wait for about 30 minutes to allow moisture driven out of the hole by drilling heat to return to its original value. Otherwise measurement results could be falsified.

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Technical data

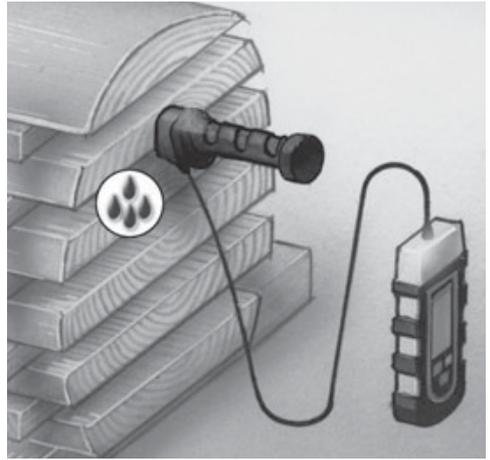
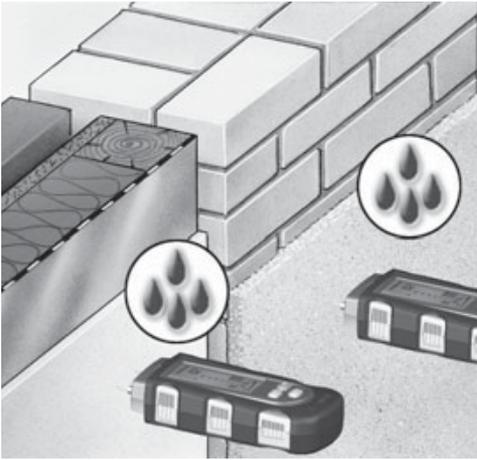
Technical revisions reserved. 04/09

Measurement principle	Resistive material moisture measurement by way of integrated electrodes
Modes	3 wood groups 4 building materials Index mode for 15 additional building materials, Test mode
Measurement range / accuracy	wood: 0...30 % / ± 1 %, 30...60 % / ± 2 %, 60...90 % / ± 4 % other materials: ± 0.5 %
Nominal temperature	25 °C
Permissible operating temperature	0 °C...40 °C
Permissible storage temperature	-10 °C...60 °C
Permissible max. relative humidity	85 %
Power supply	3 x lithium button cells, 3 V, type CR2032
Dimensions (W x H x D)	60 mm X 162 mm X 30 mm
Weight	0.169 kg

Warranty

The warranty period is 2 years from the date of purchase. The warranty covers all material or manufacturing defects occurring during this time. The following are excluded from warranty: Damage due to improper use (e.g. operation with wrong type of current/voltage, connection to unsuitable power source, fall onto hard surface, etc.) or improper storage, normal wear and tear, and defects which only insignificantly impair the value or suitability for use. Any tampering by unauthorised persons will render this warranty void. In the event that you need to claim warranty, please take the complete device together with all information and the invoice to one of our dealers or send it in to Umarex-Laserliner.

DampMaster / DampMaster Plus



SERVICE



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082.020A / 082.021A Rev.0409