

FHM 20

BEDIENUNGSANLEITUNG
USER MANUAL
MODE D'EMPLOI



Dear customer,

Thank you for your confidence in us having purchased a **geo-FENNEL** instrument.
This manual will help you to operate the instrument appropriately.

Please read the manual carefully - particularly the safety instructions. A proper use only guarantees a longtime and reliable operation.

geo-FENNEL
Precision by tradition.

Contents

1. Supplied with	A
2. Power supply	B
3. Keypad and operation	C
4. Check and calibration	D
5. Safety notes	E

A SUPPLIED WITH

- Moisture meter FHM 20
- Moisture and temperature probe
- 2 x AAA batteries
- 2 x replacement measuring pin
- Padded bag
- User manual

Technical Data

Measuring principle	Electrical resistance
Measuring range: Wood	6 to 99,9 %
Accuracy: Wood	± 1 % *
Measuring range: Building materials	3 to 33 %
Accuracy: Building materials	± 1 %
Measuring range: Temperature	0 to 60°C

*average adjustment for European wood at 20°C

· CHARACTERISTICS

-
- Moisture meter for wood and building materials
- Wood: calibrated for 170 wood types in 8 groups
- Building materials: gypsum, concrete, mortar, plaster, plasterboard, paper, ...
- Measurement of moisture permeation, surface humidity, determination of dry and humid areas
- External moisture measurement probe
- External temperature measurement probe
- Replaceable 8 mm measuring pins
- Protective cap with integrated calibration tester
- Battery status indicator
- Automatic power off (adjustable timer)

NOTE

Measurements using the external moisture and temperature probes are automatically temperature corrected. This ensures a higher accuracy.

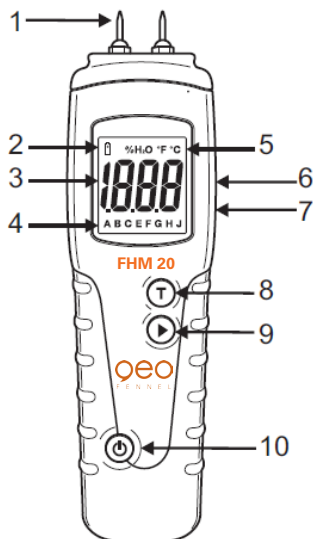
POWER SUPPLY

B

Open the battery compartment cover on the reverse side and insert 2 x AAA batteries (ensure correct polarity). Close the battery compartment cover.

If the battery status indicator starts to "blink" the batteries need to be re-placed.

C KEYPAD AND OPERATION



1. Measuring pins
2. Battery status indicator
3. Reading of measured value
4. Wood group indicator
5. Units of measurement
6. External moisture probe socket
7. External temperature probe socket
8. Temperature selection button °C/°F
9. Wood group selection button
10. Power ON/OFF button

The battery compartment cover is located on the reverse side of the instrument.

OPERATION

- Remove the measuring pins protective cover OR insert the external moisture probe into the "Moisture" socket on the right side of the instrument.
- Power on the instrument with button (10).
- Select the appropriate wood group (group A to J) with button (9) (see list on p. 16 - 18.)
- Push the measuring pins or the external moisture probe into the wood and read the measured value.
- Press and hold button (10) to switch the instrument off.

AUTOMATIC SHUT-OFF

The automatic shut-off of the instrument can be selected between 1 and 9 minutes. Press button (10) to "Power on" the instrument. Then press buttons (9) and (10) simultaneously until the required time appears (the values 00 to 09 will be shown in the display successively). "00" means that the automatic shut-off is de-activated.

USING THE INSTRUMENT WITHOUT THE EXTERNAL TEMPERATURE PROBE (Manual correction of measurement required)

The instrument is calibrated for European wood at 20 °C. If the temperature of the wood to be measured varies by more than 5°C, the meter reading can be manually corrected, as follows:

The manual correction of the reading if the wood to be measured is above 20°C:
- 0.5 % moisture content for each 5°C difference.

The manual correction of the reading if the wood to be measured is below 20°C:
+ 0.5 % moisture content for each 5°C difference.

USE OF THE INSTRUMENT WITH EXTERNAL TEMPERATURE PROBE (Automatically temperature corrected)

- Connect the external temperature probe into the "Temp" socket on the right side of the instrument.
- Drive a nail (approx. Ø 3 mm) into the wood to be measured. Then remove the nail and insert the temperature probe into the resultant hole.
- Power on the instrument and select the appropriate wood group (group A to J) - see OPERATION.
- Press button (8): the temperature will be displayed in °C; press button (8) once more to display the temperature in °F.
- Drive the measuring pins or the external moisture probe into the wood; now press button (9) to display the moisture measurement.

CHECK AND CALIBRATION

D

- Remove the cover from the measuring pins and turn it such as the calibration poles "T" and "B" are visible (outside - on top).
- Press the measuring pins on the "T" poles; the value shown must be between 17,7 and 18,3.
- Then press the measuring pins on the "B" poles; the value shown must be between 25,5 and 26,5.
- If the values shown are beyond these tolerances the instrument must be re-calibrated.

WOOD SCALES

Abura	E	Elm, Japanese Grey Bark	B
Afara	A	Elm, English	E
Aformosa	G	Elm, Rock	E
Afzelia	E	Elm, White	E
Agba	J	Empress, Tree	J
Amboyna	G	Erimado	F
Ash, American	B		
Ash, European	A		
Ash, Japanese	A	Fir, Douglas	B
Ayan	C	Fir, Grand	A
		Fir, Noble	J
Baguacu, Brazilian	F		
Balsa	A	Gegu, Nohor	H
Banga Wanga	A	Greenheart	C
Basswood	G	Guarea, Black	J
Beech, European	C	Guarea, White	H
Berlina	B	Gum, American Red	A
Binvang	E	Gum, Saligna	B
Birch, European	J	Gum, Southern	B
Birch, Yellow	A	Gum, Spotted	A
Bisselon	E	Gurjun	A
Bitterwood	F		
Blackbutt	C		
Bosquiea	A	Hemlock, Western	C
Boxwood, Maracaibo	A	Hiba	J
		Hickory	F
		Hyedunani	B
Camphorwood, E African	C		
Canarium, African	B		
Cedar, Japanese	B	Iroko	F
Cedar, West Indian	J	IronbankB	B
Cedar, Western Red	C		
Cherry, European	J		
Chestnut	C	Jarrah	C
Coachwood	G	Jelutong	C
Cordia, American Light	F		
Cypress, E African	A		
Cypress, Japanese (8-18%mc)	J	Karpur	A
Cypress, Japanese (18-28%mc)	C	Karri	A
		Kauri, New Zealand	E
		Kauri, Queensland	J
Dahoma	A	Keruing	F
Danta	C	Kuroka	A
Douglas Fir	B		

Larch, European	C	Pine, American long leaf	C
Larch, Japanese	C	Pine, American pitch	C
Larch, Western	F	Pine, Bunya	B
Lime	E	Pine, Caribbean Pitch	C
Loliondo	C	Pine, Corsican	C
		Pine, Hoop	C
		Pine, Huon	B
Mahogany, African	J	Pine, Japanese Black	B
Mahogany, West Indian	B	Pine, Kauri	E
Makore	B	Pine, Lodgepole	A
Mansoia	B	Pine, Maritime	B
Maple, Pacific	A	Pine, New Zealand White	B
Maple, Queensland	B	Pine, Nicaraguan Pitch	C
Maple, Rock	A	Pine, Parana	B
Maple, Sugar	A	Pine, Ponderosa	C
Matai	E	Pine, Radiata	C
Meranti, Red (dark/light)	B	Pine, Red	B
Meranti, White	B	Pine, Scots	A
Merbau	B	Pine, Sugar	C
Missanda	C	Pine, Yellow	A
Muhuhi	J	Poplar, Black	A
Muninga	G	Pterygota, African	A
Musine	J	Pyinkado	E
Musizi	J		
Myrtle, Tasmanian	A		
		Queensland Kauri	J
		Queensland Walnut	C
Naingon	C		
		Ramin	G
Oak, American Red	A	Redwood, Baltic (European)	A
Oak, American White	A	Redwood, Californian	B
Oak, European	A	Rosewood, Indian	A
Oak, Japanese	A	Rubberwood	H
Oak, Tasmanian	C		
Oak, Turkey	E		
Obeche	G	Santa Maria	H
Odoko	E	Sapele	C
Okwen	B	Sen	A
Olive, E African	B	Seraya, redt	C
Olivill	G	Silky Oak, African	C
Opepe	H	Silky Oak, Australian	C
		Spruce, Japanese (8-18%mc)	J
		Spruce, Japanese (18-28%mc)	C
Padang	A	Spruce, Norway (European) Spruce,	C
Padauk, African	F	Sitka	C
Panga Panga	A	Stringybark, Messmate	C
Persimmon	G	Stringybark, Yellow	C
Pillarwood	F	Sterculia, Brown	A
		Sycamore	F

Tallowwood	A	Walnut, African	J
Teak	F	Walnut, American	A
Totara	E	Walnut, European	C
Turpentine	C	Walnut, New Guinea	B
		Walnut, Queensland	C
		Wawa	G
Utile J	J	Wandoo	J
		Whitewood	C
		Yew	C

NOTES

The calibration scale is based on standard tests made with oven-dried samples of the various wood species (between 7% and fibre saturation). Beyond the fibre saturation point (25 % to 30 %) the readings are approximate only and generally apply to wood that has been dried and re-wetted.

The instrument is calibrated for wood at 20°C. If the temperature of the wood to be measured varies by more than 5°C, the meter reading can be manually corrected, as follows:

The manual correction of the reading if the wood to be measured is above 20°C:
- 0.5 % moisture content for each 5°C difference.

The manual correction of the reading if the wood to be measured is below 20°C:
+ 0.5 % moisture content for each 5°C difference.

If the wood has been impregnated with a water-borne preservative readings obtained may be higher by 1 to 2 %.

MEASUREMENT OF BUILDING MATERIALS

Select scale / group A, carry out the measurement and read the value measured on the display.

SAFETY NOTES

E

CARE AND CLEANING

Handle measuring instruments with care. Clean with soft cloth only after any use. If necessary damp the cloth with some water. If the instrument is wet clean and dry it carefully. Pack it up only if it is perfectly dry. Transport in original container / case only.

ELECTROMAGNETIC ACCEPTABILITY (EMC)

It cannot be completely excluded that this instrument will disturb other instruments (e.g. navigation systems); will be disturbed by other instruments (e.g. intensive electromagnetic radiation nearby industrial facilities or radio transmitters).

CE-CONFORMITY

The instrument has the CE-mark according to EN 61326-1:2006, EN 61326-2-1:2006, IEC 61326-1:2005, IEC 61326-2-1:2005.

WARRANTY

This product is warranted by the manufacturer to the original purchaser to be free from defects in material and workmanship under normal use for a period of two (2) years from the date of purchase. During the warranty period, and upon proof of purchase, the product will be repaired or replaced (with the same or similar model at manufacturers option), without charge for either parts or labour. In case of a defect; please contact the dealer where you originally purchased this product. The warranty will not apply to this product if it has been misused, abused or altered. Without limiting the foregoing, leakage of the battery, bending or dropping the unit are presumed to be defects resulting from misuse or abuse.

EXCEPTIONS FROM RESPONSIBILITY

1. The user of this product is expected to follow the instructions given in the user manual. Although all instruments left our warehouse in perfect condition and adjustment the user is expected to carry out periodic checks of the product's accuracy and general performance.
2. The manufacturer, or its representatives, assumes no responsibility of results of a faulty or intentional usage or misuse including any direct, indirect, consequential damage, and loss of profits.
3. The manufacturer, or its representatives, assumes no responsibility for consequential damage, and loss of profits by any disaster (earthquake, storm, flood etc.), fire, accident, or an act of a third party and/or a usage in other than usual conditions.
4. The manufacturer, or its representatives, assumes no responsibility for any damage, and loss of profits due to a change of data, loss of data and interruption of business etc., caused by using the product or an unusable product.
5. The manufacturer, or its representatives, assumes no responsibility for any damage, and loss of profits caused by usage other than explained in the user' manual.
6. The manufacturer, or its representatives, assumes no responsibility for damage caused by wrong movement or action due to connecting with other products.

SAFETY INSTRUCTIONS

- Follow up the instructions given in the user manual.
- Use the instrument for measuring jobs only.
- Do not open the instrument housing. Repairs should be carried out by authorized workshops only. Please contact your local dealer.
- Do not remove warning labels or safety instructions.
- Keep the instrument away from children.
- Do not use the instrument in explosive environment.
- The user manual must always be kept with the instrument.

Please note:

If you return instruments for repair / for adjustment to us please disconnect batteries or rechargeable batteries from the instrument - this is for safety reasons!

Thank you.

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**Technische Änderungen vorbehalten.
All instruments subject to technical changes.
Sous réserve de modifications techniques.**



Precision by tradition.

