humimeter.com®
by Schaller Messtechnik

User manual

Moisture meter for a quick determination of water content of special products

humimeter FSG

Version 1.1_en

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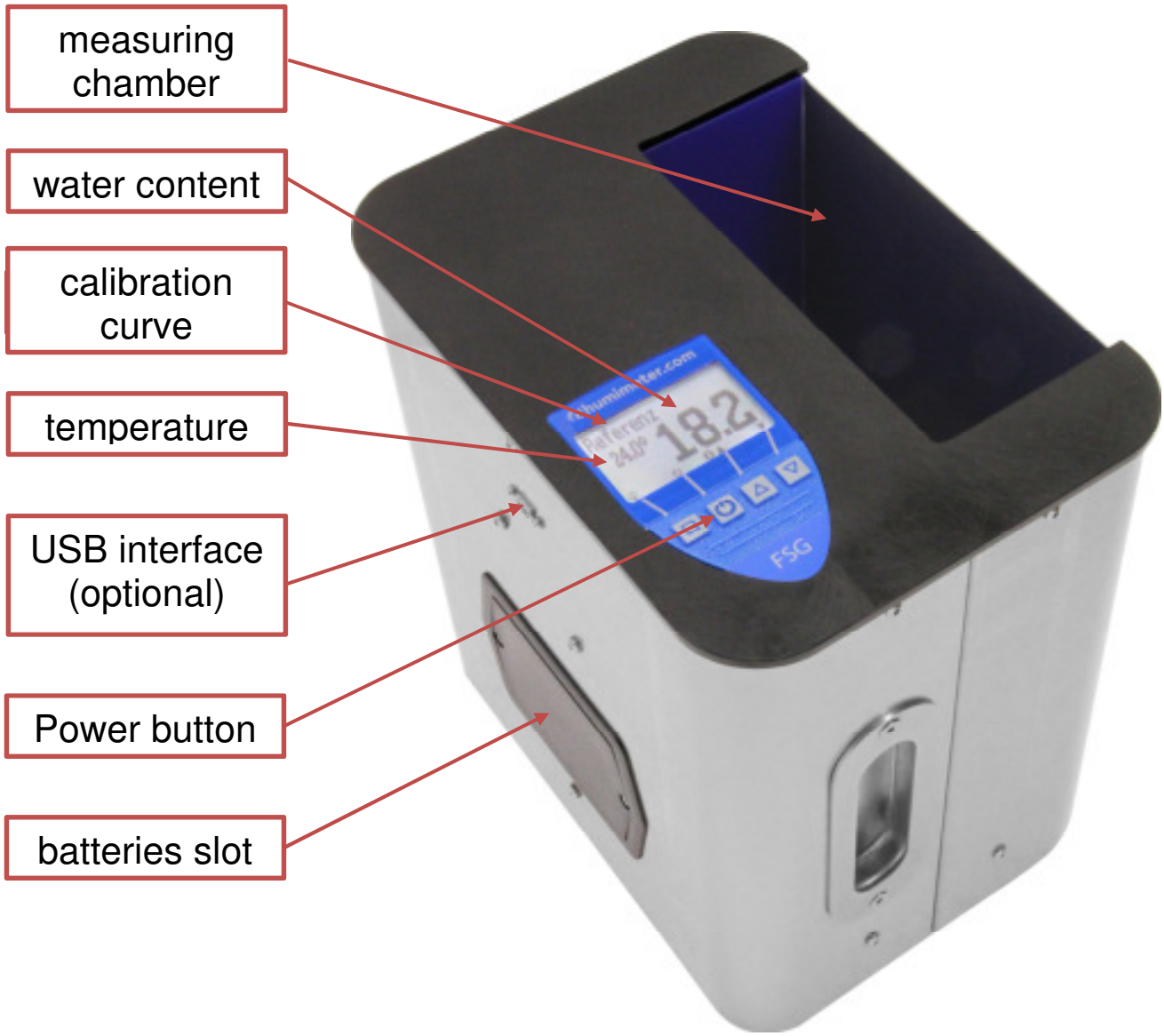
2016

Design of the device

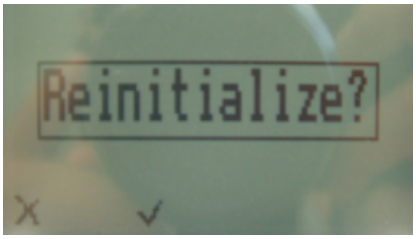


Measuring procedure

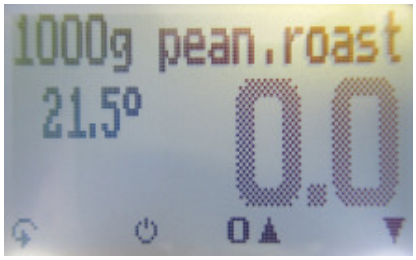
1. Make sure that the measuring chamber is completely empty. It is important that no material is left in the measuring chamber when you turn on the device.

2. Switch on the instrument by pressing the power button (⏻) for 3 sec.

3. The next step is a self-calibration of the instrument. The word “reinitialize” will show up on your display. Accept by pressing the ✓ button.



4. Select the right calibration curve for your material under test using the buttons ▲ or ▼.



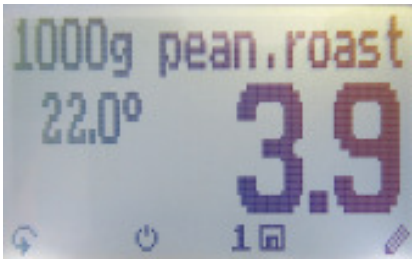
5. Place the empty provided bucket on the scale. Then turn on the scale. The scale has to show **0.0 gram** now (with the bucket on it).

6. Fill up the bucket with the correct quantity of sample material. The filling quantity needed is shown on the upper left corner of the display of the device.

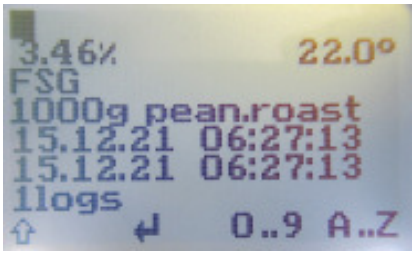
7. Fill up the measuring device with the sample material. The filling needs to be done **slowly and constantly** to ensure reproducible results. Don´t use a funnel or anything similar for the filling.

8. The display shows the measuring result.
   If the measuring value is blinking, the valid measuring range has been exceeded (for limits see list on page 5). In this case the accuracy decreases.

9. To save the results in the store menu press the 🖫 (▲ button). The storage was successful when the number in front of the symbol 🖫 increases. To reach the store menu please press (⟲) until the 🖫 appears.



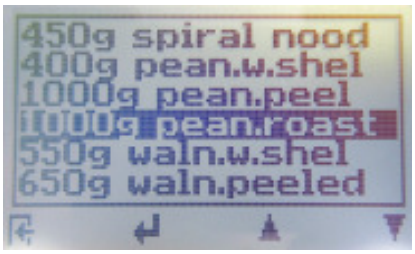
10. To name the saved results press the ✎ button.



11. Empty the humimeter and ensure that no material remains in the measuring chamber.

List of calibration curves

Press the ▲ or ▼ key in the measuring window for at least 3 seconds and a list with all available sorts will appear. Select your sort by pressing ▲ or ▼ and confirm with the ↵ key.



Calibration curves

calibration curve	material	filling quantity	measuring range
450g spiral nood	spiral noodles	450g	5 to 15%
400g pean.w.shel	peanuts with shell	400g	2 to 11%
1000g pean.peel	peanuts peeled, with skin	1000g	2 to 10%
1000g pean.roast	peanuts roasted	1000g	2 to 10%
550g waln.w.shel	walnuts with shell	550g	2 to 10%
650g waln.peeled	walnuts peeled	650g	1 to 8%
1000g maca.w.she	macadamia nuts with shell	1000g	2 to 10%
1000g maca.peel	macadamia nuts peeled	1000g	1 to 8%
1000g almonds	whole almonds with skin	1000g	1 to 12%
Free 1	for customer calibration		
Free 2	for customer calibration		
Free 3	for customer calibration		
Free 4	for customer calibration		
Reference	To test the humimeter – must not be used for measuring!		

Product pictures

spiral noodles	peanuts with shell	peanuts peeled	peanuts roasted
walnuts with shell	**walnuts peeled**	**macadamia with shell**	**macadamia peeled**

Free calibration curves: On request Schaller GmbH can develop customized calibration curves for your specific product. Schaller GmbH can also enter already existing calibration curves subsequently.

Determination of the material reference moisture

The humimeter FSG determines the water content, which means that it calculates the moisture referred to the total mass:

$$\%F = \frac{Mn - Mt}{Mn} \times 100$$

M_n: Mass of the sample before drying
M_t : Mass of the dried sample
%F: Calculated water content

For the determination of material reference moisture, the samples have been dried in a drying chamber at 105°C for 12 hours (according to EN 14774).

Changing batteries

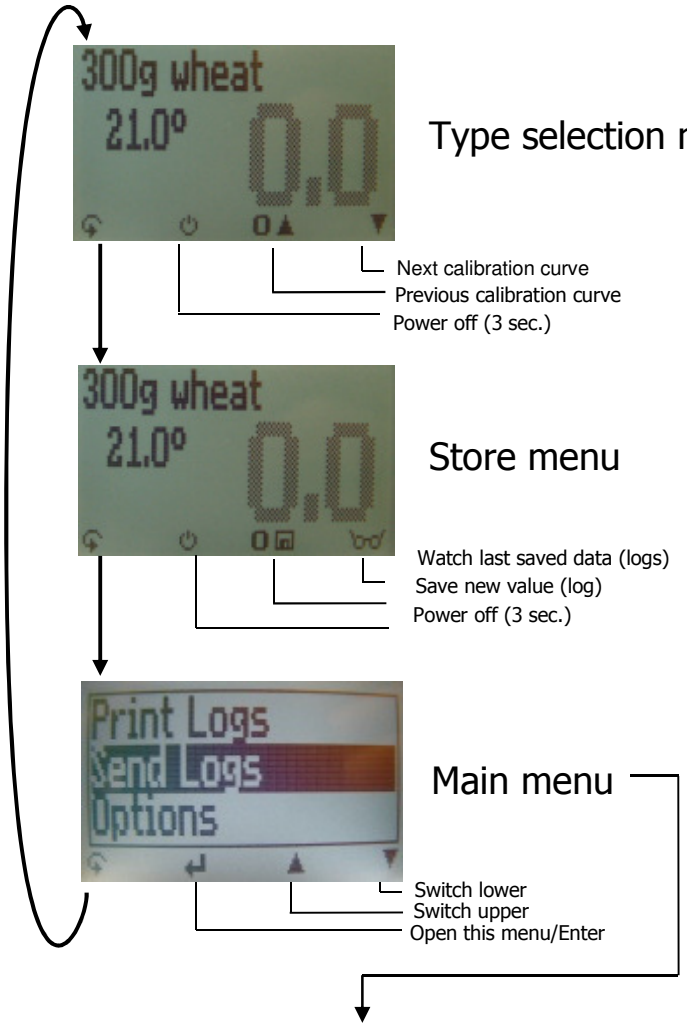
If the batteries are empty, please proceed as follows:

1.) Loosen the screws on the black battery cover.
2.) Remove the empty batteries.
3.) Put four new 1.5 Volt AA Alkaline batteries in the device. Check the right position of the battery poles.
4.) Press down the batteries and close the cap by tightening the screws.

If the battery symbol appears in the measuring window resp. if a critical charge of battery is shown in the status, the batteries have to be changed IMMEDIATELY.

Also remove the batteries if you do not use your humimeter device for a longer period. For eventual resulting damages we cannot provide any warranty.

Menu level overview



Overview main menu

Edit logs	*Options*
Manual logs	Date/Time
Clear logs	Language
	Unlock
Print logs	°C / °F
Last log	BL On Time
All logs	Auto Off Time
Clear logs	Materialcalib.
	o Online Send
Send logs	o Online Print
Manual logs	Passwort
Clear logs	Reset
Options	
Status	

Keypad symbols

Measuring window:

- Rolling Menu
- Power ON / OFF
- Switch upper
- Switch lower
- Save
- Hold
- Watch saved data
- Add suppliers´data

Menu:

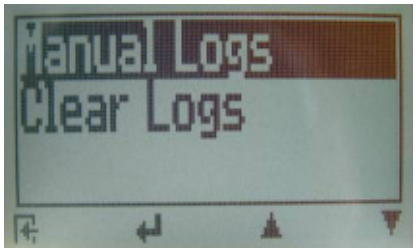
- Enter
- Switch upper
- Switch lower
- Exit
- 0..9 Enter numbers
- A..Z Enter letters
- Next or right
- Left
- Yes
- No
- Shift
- OK OK

Transfer saved data to the PC

(Only possible with humimeter USB interface module)

To send your saved logs to the PC, connect the humimeter device to your PC using the USB cable that was delivered with your device. Carefully loose the protection cap on your humimeter and plug in the USB mini B connector. The bigger connector has to be connected to a USB slot on your PC.
Start the LogMemorizer software on your PC and switch on your humimeter BL2.

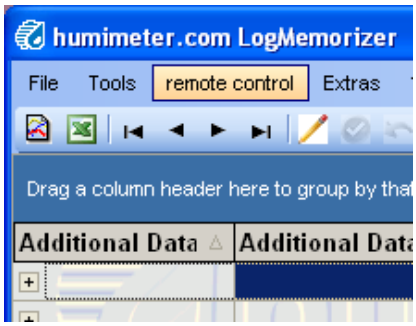
The data transfer can be started on your humimeter or on the software.



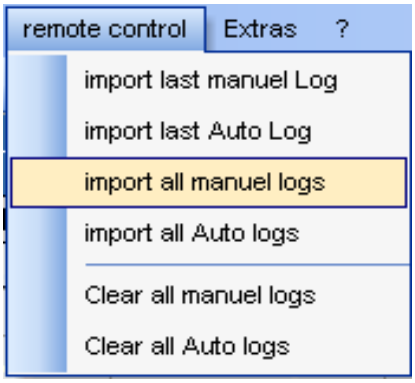
Starting the data transfer on the humimeter:

Press the ↻ key until you reach the menu (see image on the right). Then choose „Send Logs“ and confirm by pressing the ↵ key. Now choose „Manual Logs“ and confirm with ↵ again. All saved logs will be sent to your PC.

Starting the data transfer on your PC:



Press the button „remote control“ in the LogMemorizer software. A drop-down menu with several options opens (see image below).



For transferring the data you can select „Import last manual log“ (the last saved measuring series is transferred) or „Import all manual logs“ (all saved logs are transferred).

If you click on one of these menu items, the transfer starts immediately.

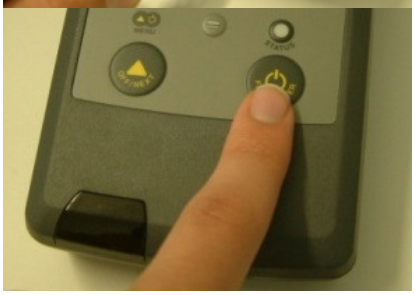
For the basic adjustments of the software please look through the instructions on the LogMemorizer USB flash drive.

Print saved data

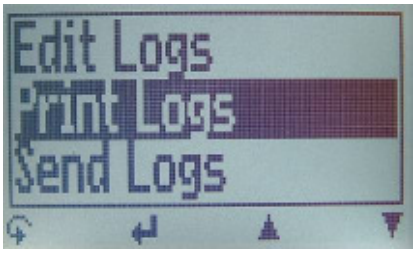
(*only with optional USB interface)*

To print your saved data, connect the device to the printer using the printer cable that was delivered with your device. Carefully loose the protection cap on the humimeter. At first plug in this side of the connector having the plastic casing closer to the end at the humimeter. Then switch on the device.

Not till then the other side of the cable has to be plugged in at the printer. Switch on the printer by pressing ⏻. Now the green LED is blinking. If it does not blink, please change the batteries and try again.



Press the button at your humimeter until you reach the menu (see image on the right). Choose „Print Logs“ and confirm by pressing ↵.



Now you can select a print of the last saved measuring series or of all saved measuring series (logs).

Confirm by pressing ↵ again. The selected logs are printed out now.

To save paper, please think of clearing the data storage regularly.

Online Print and Online Send

If your device supports the functions “Online Print” and “Online Send”, these functions can be activated in the menu „Options“. If one of these options is active, every newly recorded log will immediately be printed or transferred to the PC when pressing the key.

Exemption from liability

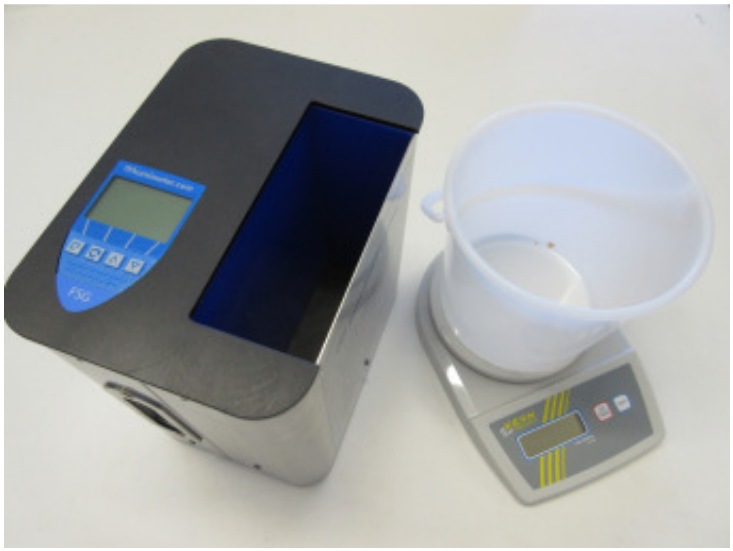
For misreadings and wrong measurements and of this resulting damages we refuse any liability. This is a device for the quick determination of moisture. The moisture depends on multiple conditions and multiple materials. Therefore we recommend a plausibility check of the measuring results. Each device includes a serial number and the guarantee stamp. If those are broken, no claims for guarantee can be made. In case of a faulty device, please contact Schaller GmbH (www.humimeter.com) or our dealer.

Operation and handling

Switching on:	Press the button for 3 seconds.
Setting time:	3 times -> Options -> Date / Time
Saving:	Pressing the button below the symbol, the shown measuring value is saved on the instrument. To name the saved results press the button.
Activation of superuser:	2 times - *Options* – Unlock Enter the 4-digit password by using the button (standard is the 4-digit serial number) and confirm by pressing the button.
Display lighting:	Press the key; backlight will turn off automatically after 30 seconds. Backlight will be activated by pressing any key.
Power off:	Press the key for 5 seconds; the device will be switched off when you leave the key. The device also switches off automatically when no key is pressed for 4 minutes.
Measuring range limit:	If the measuring value is blinking, the valid measuring range is exceeded. In this case the accuracy will be decreasing.

Technical data

Resolution of display	0.1 % water content 0.5 °C temperature
Measuring range	1 to 15 % (dependent on material)
Operation temperature	0 °C to +50 °C (32 to 122 °F)
Storage temperature	-20 °C to +60 °C (-4 to 140 °F)
Temperature compensation	automatically
Power supply	4 pcs. 1.5 Volt AA Alkaline batteries (900 measurements)
Auto Switch OFF	after approx. 6 minutes (adjustable)
Current consumption	60 mA (with light)
Display	128 x 64 matrix display, lighted
Dimensions	226 x 165 x 240 mm
Weight	3.0 kg (with batteries)
Degree of protection	IP 40
Scope of supply	humimeter FSG digital scale 2200g plastic bucket 2.5 litres 4 pcs. 1.5 Volt AA Alkaline batteries
Optional accessories	USB data interface module with LogMemorizer software, portable thermo printer



!IMPORTANT! Please read

Most common reasons for misreadings

- ***Product temperature out of application range***
  Material **below 0°C** resp. **above +50°C** (32 to 122 °F) may cause faulty measurements. The storage of cold material in a warm storage area usually creates condensed water, which may lead to major measuring errors.
- ***Not adjusted material under test***
  Let your humimeter adjust to the surrounding temperature of the material for approx. half an hour.
  A very high temperature difference has a negative effect on the stability of the measurement results.
- ***Wrong calibration curve***
  Before measuring your sample, please double-check the correct selection of the calibration curve.
- ***Wrong filling quantity***
  Fill in exactly the right weight of material in the measuring chamber.
- ***Wet or mouldy material***
- ***Frozen measuring material or material mixed with snow***
  In these cases the accuracy decreases significantly.

Device maintenance instructions

To provide a long life of your device, please do not expose it to strong mechanical loads or heat e.g. dropping it or direct sunlight exposure. Clean your device using a dry cloth. The measuring chamber needs to be cleaned with a dry and soft brush.

Any kind of wet cleaning or detergents damages the device. The instrument is not rainproof. Keep it in dry areas. When the device is not used for a longer period (6 months) or when the batteries are empty, they should be removed to prevent a leakage of the battery acid.