User manual

grain moisture meter

humimeter FS2

Office: Jl. Radin Inten II No. 62 Duren Sawit, Jakarta 13440 - Indonesia
Workshop: Jl. Pahlawan Revolusi No. 22B, Jakarta 13430 - Indonesia
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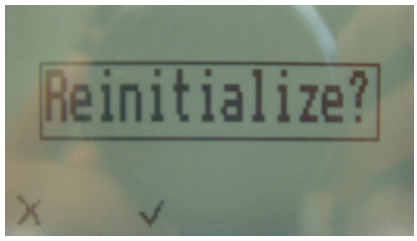
1. Place the empty provided cup (0.5 litre) on the scale and turn the scale on. It shows 0.0 gram.

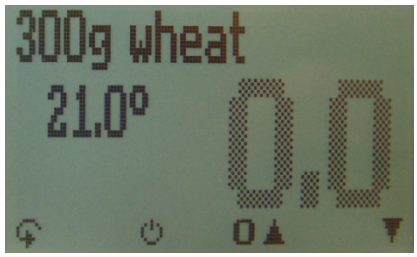
2. Make sure that the measuring chamber is completely empty. It is important that no material is left in the measuring chamber when you turn on the device.

3. Switch on the humimeter FS2 by pressing the power button (⏻) for 3 sec.

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



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



6. Fill up the cup with the sample material (+/- 1.0g). 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.

8. The display shows the measuring result.

9. If the measuring value is blinking, the valid measuring range has been exceeded (limits see list on page 5). In this case the accuracy decreases.

10. To save the results in the store menu press the (button). Storage was successful when the number in front of the symbol increases. To reach the store menu please press () until the appears.

11. To name the saved results press the button.

12. Empty the humimeter and ensure that no grain rests are accumulated in the measuring chamber.

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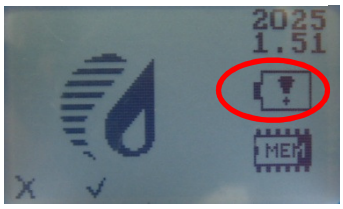
Changing batteries

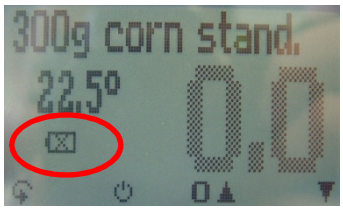
If the batteries are empty, please proceed as follows:

1.) Press with your finger onto the arrow of the battery cap und pull it back.
2.) Remove the empty batteries.
3.) Put four new batteries in the device. Check the right position of the battery poles.
4.) Press down the batteries and close the cap.

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.



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. The measurement will continue automatically.

Calibration curves

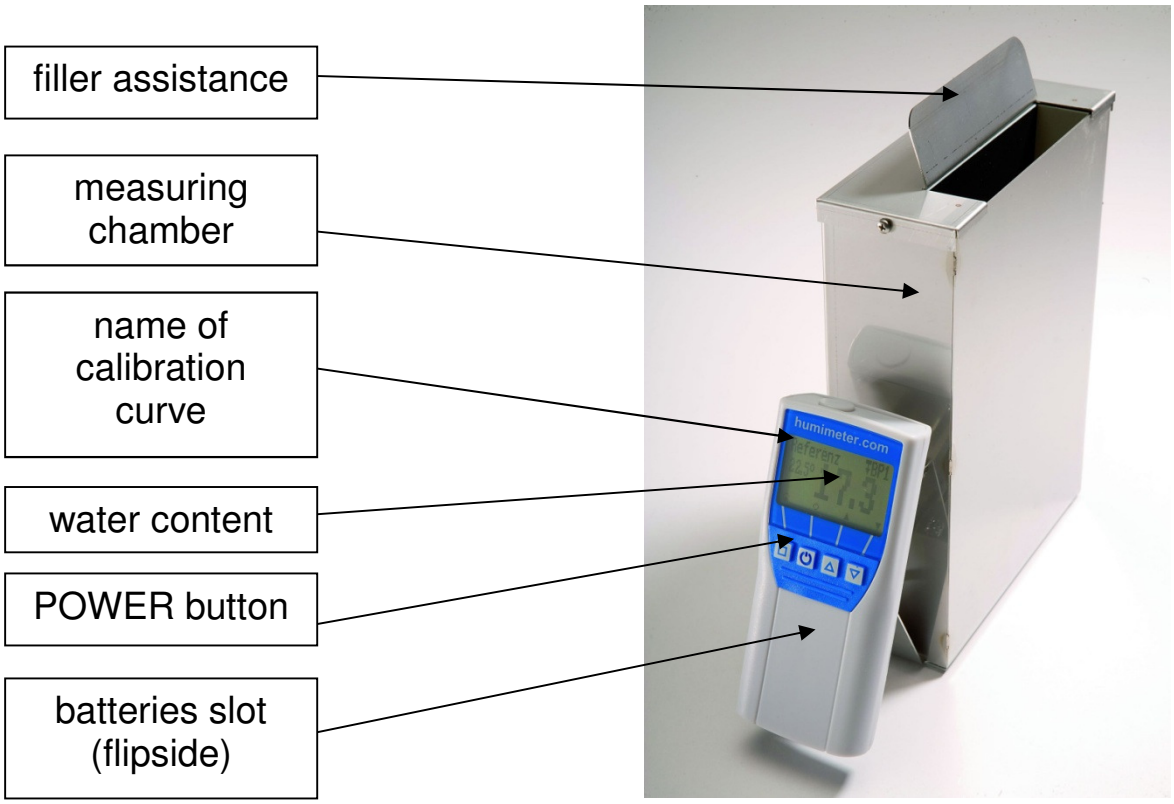
300g corn 5..40% 	300g hand corn 5..40% 	300g rye 5..28% 	300g triticale 5..28%
300g wheat 5..28% 	300g durum 5..28% 	300g spelt peeled 5..28% 	300g barley 5..28%
190g oats 5..25% 	300g rape 5..18% 	230g pumpkin seed 2..20% 	310g peas 5..25%
300g soybeans 9..18% 	295g horse beans 10..20% 	277g scarlet runner 8..25% 	180g sunflower 5..18%
300g rice peeled 9..25% 	250g rice unpeeled 4..30% 	300g rice brown 4..26% 	300g buckwheat 5..18%

300g millet 5..15%	300g sorghum millet 5..25%	200g jatropha 5..18%	reference
			only for internal use!

Additional 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.

Design of the device



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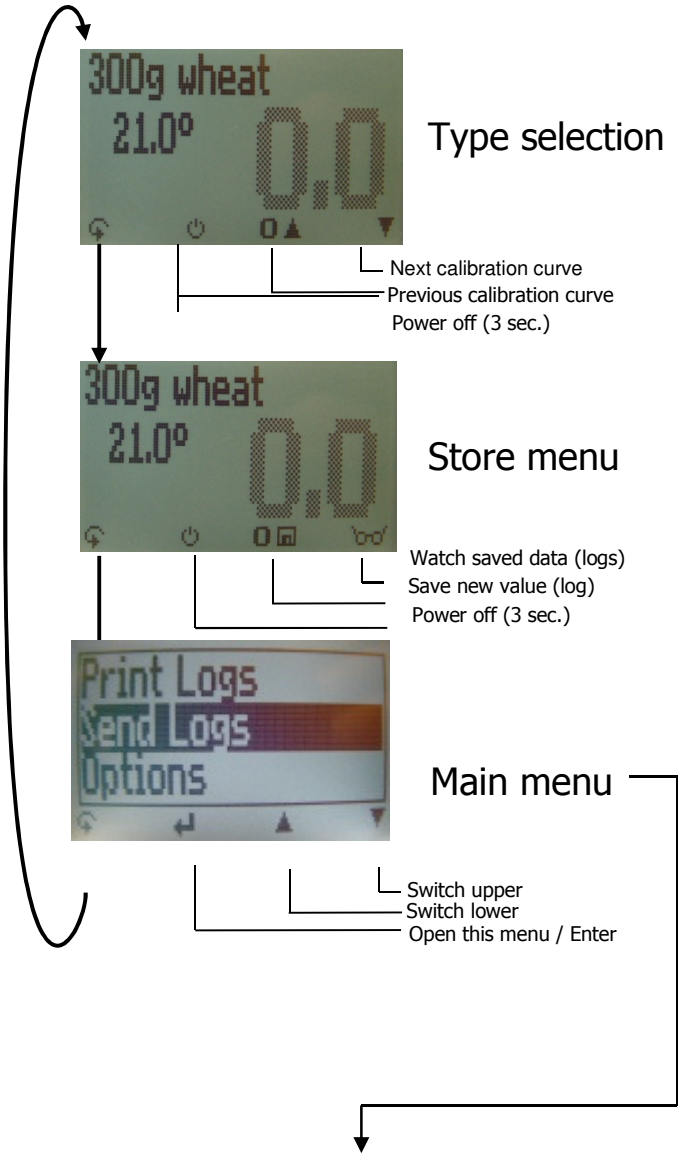
Menu level overview



Overview main menu

Edit Logs	*Options*
Manual Logs Clear Logs	Date / Time Log Time Language Unlock °C / °F o Userlevel Materialcalib. Password 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

Determination of the material reference moisture

The principle is a comparison measurement with the dehydration method according to **EN ISO712**. Take the measured sample and weigh it. Dry it out in an oven and weigh it again.

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

M_n: Mass with average moisture content
M_t : Mass of the dried sample
%F: Calculated moisture content

Notes

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Notes

Exemption from liability

For miss-readings 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 faul

Activation of the “super user” function

2 times - *Options* – Unlock

Enter the 4-digit password using the button (standard is the 4-digit serial number) and confirm by pressing the button.

Technical data

Resolution of the display	0.1% water content 0.5°C temperature
Measuring range	5 up to 40% depending on the material
Operation temperature	0 up to +40°C (32 up to 104°F)
Storage temperature	-20°C to +60°C
Temperature compensation	automatically
Power supply	4 pcs. 1.5 Volt AA Alkaline batteries (900 measurements)
Auto Switch OFF	After approx. 6 minutes
Current consumption	60mA (with light)
Display	128x64 matrix display, lighted
Dimensions	260 x 70 x 250 mm
Weight	approx. 1.3 kg (with batteries)
Degree of protection	IP 40
Scope of supply	**FS2** incl. plastic case digital scale (max. 500g; 0.1g) measuring cup 0.5 liter 4 pcs. 1,5Volt AA Alkaline Batteries

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 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.

! IMPORTANT ! please read

Most common reasons for miss readings

- ***Product temperature out of application range***

  Material of a temperature **below 0℃** resp. **above +40℃** (32 to 104 ℉) 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 (± 1.0g) of material in the measuring chamber.

- ***Wet or mouldy material***
- ***Stored and fermented corn silage from whole grains may lead to higher value***
- ***Frozen measuring material***
- ***Polluted measuring material***

  Polluted material e.g. barley spikes or other material mixed with the sample has a negative effect on the measurement