



DRAMINSKI GRAIN MASTER

**GRAIN MOISTURE METER
with sample grinding**



OPERATING MANUAL

www.draminski.com

WHAT ARE THE BUTTONS FOR?



"ON/OFF" button

- switching the device on and off (Caution! The device will automatically turn off after 3 minutes if no buttons are used.)

"OK" button

- measurement cycle start

"C" button

- readout of mean value from 3 last measurements and return to the name selection from the species list

"▲, ▼" button

- selection of grain from the species list

DEVICE ACTIVATION

Before performing measurements it is necessary to check if the friction disk of the measuring chamber and the friction disk of the cover are clean.

1. Turn on the power supply with „**ON/OFF**” button.

a. Introductory message will appear for a moment on the display (the device name and serial number), e.g.:

```
GRAIN MASTER  
1001
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The number below “GRAIN MASTER” is the serial number of the device.

b. Name of last used grain species will automatically appear, e.g.:

Rape [1]

The number in brackets is the number of samples needed for the measurement.

Using "▲ , ▼" buttons, you can select the required grain species.

MEASUREMENT PROCESS

In order to perform a measurement, it is required to carry out the following activities:

1. Fill the test chamber with proper volume of tested grain, using the socket wrench.

It is usually enough to fill the chamber with single measure of grain (approx. 9 ml). Two measures are required for maize measurement only. The principle is to use a flat filled socket (without a pile on top).

Tested sample must be properly taken and purified. Careful measurement of grain volume will give correct result.

Improper measurement of grain volume (too much or too small) will result in unnecessary inaccurate readings.

2. Put the test chamber cover into the threaded shank and turn it manually several times to - light resistance.
3. Put on the socket wrench into the hexagonal shank and tighten it in short strokes to complete resistance, until it is locked with protruding pin. During tightening, it is necessary to hold the device steady on the surface or to hold the meter in your hand.
4. After performing above activities, check if the display shows proper grain species and start the measurement process by pressing green „OK” button.
- text and progress state (stars) will appear, e.g.:

Rape Wait

Rape ****...

5. After finishing measurement cycle, lasting approx. 20 seconds, the following message with results appears:

Rape 11,6% 22,0°C

6. Last three results are stored in the memory. Press „▲” button to read the average value of last three measurements and store it as a final result.

Rape
[3] 11,5%

Average result is the result of last 3 measurements. The number in the brackets is the number of measurements taken until the moment of display.

7. After each measurement, unscrew the chamber cover using socket wrench (change the position of direction switch), empty and clean the chamber and a friction disk of the cover with special brush.
8. Thorough cleaning is required after change of tested grain species and for samples with diversified and increased humidity content.
9. It is required to clean the friction components immediately after finishing the measurement., when are measured high moisture content.
10. Water lying on the sample surface (e.g. dew) may influence the results, so it is recommended to avoid such samples and to "air" the tested sample before measurement.

SPECIES AND MEASUREMENT RANGES

1. rape	4% - 20%	5. spring barley	9% - 24%
2. rye	9%– 24%	6. triticale	9% - 24%
3. durum wheat	9% - 24%	8. oat	9% - 24%
4. bread wheat	9% - 24%	7. maize	9% - 40%

In case of exceeding lower or upper limit of the measurement range, following message is displayed, e.g. "< 9.0%" (below) or "> 24.0%" (above), (meaning that the measurement result exceeded the boundary value for the species stored in the device memory).

DATA MODIFICATION

In case of significant differences between the moisture meter readings and the oven method, the **Data Modification Mode** should be used. Grains may differ according to country, climate, each year harvest etc. and some changes in grain calibrations may be necessary to show exact results.

The modification modes allow the user to modify data originally programmed by the manufacturer for the particular kinds of seed.

This mode should be used when readings in whole measurement range are too high or too low by the same value. This mode allows the complete grain moisture-curve to be raised or lowered.

1. Turn on the modification mode by pressing "C" button and turning on the instrument with "ON/OFF" button.

Modification
OK./C

2. Press "**OK**" button and choose the desired seed by using "**Δ**" and "**∇**" buttons.

Rape

3. When the name of desired seed appears press "**OK**" button.

Rape
0.0 %

4. Now, by means of "**Δ**" and "**∇**" buttons enter the desired value of correction. That number will be used to raise or lower the readings. For example if you want to raise the readout by 1.2%, "+1.2%" should be displayed.

Rape
+1,2 %

5. When the required value is shown, press "**OK**" button. The sign "**Are you sure?**" will be displayed to make final confirmation. Confirm the change by pressing "**OK**" button again.

Are you sure?
OK./C

6. If no more modification is needed, turn off the instrument by using "**ON/OFF**" button.

Any modified species will be displayed with a "*" on the right of the display.

Rape
[1] *

It is possible to change the calibration back to data originally programmed by the manufacturer by setting the calibration to 0,0%. Then the "*" by the name of chosen seed will be removed.

BATTERY REPLACEMENT

The device is equipped with automatic power supply charge level signaling. If the battery is discharged, a message „**battery low**” is displayed.

The device is supplied with standard 9V alkaline battery.
To replace the battery, detach the cover at the bottom of the device, remove discharged battery and insert a new battery checking the polarity.
After battery replacement, put on the battery cover.

MAINTENANCE AND STORING

Quick removal of grinded material after each measurement (especially with high humidity content) favors long lasting device operation.

After each season, it is required to clean friction components and threaded shank thoroughly, using a brush and compressed air.

Meter must be stored completely dry to guarantee its durability. Moreover, metal components may be preserved using very thin layer of machine oil. Layer must be removed before further use.

The device must be stored in a dry and warm place.

TECHNICAL SPECIFICATION

method of chamber filling	manual, using fixed measure
power supply	alkaline battery - 9V
operation time	approx. 20 hours of constant operation, battery discharging automatically signaled
power input	20 mA average
measurement control	single chip microcomputer
readout display	alphanumeric LCD, 2 x16 - characters
indication resolution	0,1 % limit measurement error $\pm 1.0\%$ within 10% humidity content range, over 10% $\pm 1.2\%$.
data storage	flash memory
calibration	RS 232 type connector, encoded file
measurement temperature	10°C to 35°C (accuracy 1°C)
temperature compensation	automatic from 10°C to 35° C
storing temperature	min. +5°C, max.+45°C
weight	1400 g
dimensions	21cm x 11cmx 11cm

ACCESSORIES

1. Alkaline 9V battery (installed).
2. Socket wrench with 24mm socket
3. Cleaning brush
4. Operating manual

Dramiński company informs that the device may not be used for grain trade settlements and is intended for in-house use or approximate determination of moisture content.

Manufacturer will offer its knowledge and advice and reserves the right to design changes, and software improvements without notice.

Manufacturer:
DRAMIŃSKI
Ul. Owocowa 17
10-860 Olsztyn
Poland
Phone: +48 89 527 11 30
Fax: +48 89 527 84 44
e-mail: draminski@draminski.com
www.draminski.com