DRAMIŃSKI
TECHNOLOGY

DRAMIŃSKI GMM pro

Grain moisture meter with an integrated scale

USER MANUAL

EN

ISO 9001 | CE

TABLE OF CONTENTS

INTRODUCTION. 3
CHAPTER 1 | COMPONENTS. 5
CHAPTER 2 | KEYBOARD FUNCTIONS 9
CHAPTER 3 | TURNING ON. 11
CHAPTER 4 | MEASUREMENT. 13
CHAPTER 5 | LIST OF SPECIES AND MEASURING RANGES 17
CHAPTER 6 | BATTERY REPLACEMENT 19
CHAPTER 7 | TECHNICAL DATA. 21

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INTRODUCTION

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Thank you for choosing the new Draminski GMM pro grain moisture meter. This excellent device will be very useful in your activity. It is small and light, easy to take to the field, and gives quick and precise measurements, allowing to determine the exact grain moisture.

Innovative solutions, state-of-the-art technology and great versatility due to the possibility of updating through the USB port, make it a good long-term investment.

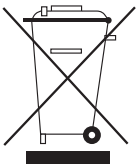
Increase your crops and enjoy your work with the Draminski GMM pro grain moisture meter.

The manufacturer – DRAMIŃSKI S.A. offers its users great knowledge and reserves the right to introduce hardware and firmware modifications. DRAMIŃSKI S.A. reserves the right to amend the contents of this instruction manual.

Read this instruction manual thoroughly before putting this device into operation. It will guarantee the safety of operation as well as long and reliable functioning of the tool.

Declaration of conformity is available for review at the seat of DRAMIŃSKI S.A. Wiktora Steffena 21, 11-036 Sząbruk, Poland.

For more information and data, visit our website **www.draminski.com**



Please note that electronic equipment and batteries must not be disposed of in household waste containers. Used equipment and appliances should be delivered to special disposal facilities, according to the valid regulations. Proper waste disposal helps to save the natural environment.

COMPONENTS

CHAPTER 1

COMPONENTS:

1. DRAMIŃSKI GMM pro moisture meter,
2. manual,
3. transport case with foam,
4. special semi-automatic dispenser,
5. 1 x 9V 6LF-22 type alkaline battery.

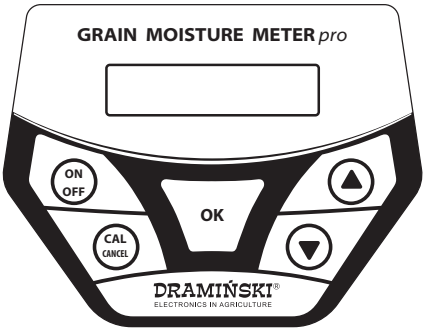
Batteries are included, but need to be installed before using the meter (**see chapter 6 "BATTERY REPLACEMENT"**). Battery compartment is located on the bottom side of the meter.

Display screen and keyboard are located on the front panel. Above the display you will find the measurement chamber for tested seeds. On the bottom of the chamber there is a temperature sensor.

The device is placed in a plastic carrying case for multiple use. It is made of material resistant to atmospheric conditions, most chemical substances and is very easy to clean.

KEYBOARD FUNCTIONS

CHAPTER 2



ON OFF	– Turning on/off. ***(Attention! If the keyboard will not be used for more than 3 minutes, the device will turn itself off automatically).***
OK	– Confirming of chosen grain calibration, – Engaging measurement process.
▼ ▲	– Scrolling down/up names of grain species calibrations available for your device.
CAL CANCEL	– Cancelling of previous operation (e.g. changing of hosen grain species calibration).

TURNING ON

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CHAPTER 3

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

The GMM mini is ready for use when batteries are properly installed in their compartment (check polarity).

At the beginning the display will shortly present the name of the device and then the model and serial number, e.g.:

Afterwards the name of the last measured grain type will appear on the screen, e.g.:

If needed, appropriate grain species should be chosen by using ▼ and ▲ buttons

MEASUREMENT

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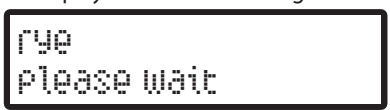
CHAPTER 4

To allow the best precision of measurement, the device should be put on a hard, flat and stable horizontal surface.

Before starting the measurement it is recommended to check if the measurement chamber is empty and then put an empty dosage tube on the top of the chamber (this procedure is necessary for the meter to prepare "entrance" parameters which are vital for accurate readings).

After preparation procedure, choose the correct grain type. Pressing **"OK"** button will start process of preparation of "entrance" parameters (including tarring of weighing system) . Following information will be displayed on the screen e.g.



After entrance parameters inspection (which lasts for few seconds) a following announcement will appear on the screen:

Pouring the sample into measurement chamber can be done only with a special dosage tube.

Filling of the dosage tube. After finishing parameter inspection take the dosage tube from the device and overfill it with measured grain. Excessive grains should be removed only with tube propeller. Turn it around until all unnecessary grains are removed.

Measured sample should be properly selected and cleaned. It is very important to fill the dosage tube correctly (not too much and not too few grain) as it has great influence on final results of the reading. If the dos-

age tube isn't filled correctly the reading will end with an announcement "sample too light" or "sample too heavy".

```
rye
sample too light
```

```
rye
sample too heavy
```

After proper preparations, the dosage tube should be carefully put over the measurement chamber.

The display should still show "pour in seed" communicate.

When the dosage tube is located properly over the chamber, press the release button with one firm push and hold it until the whole sample is poured into the measurement chamber. After that, release the button.

After pouring In seeds into measurement chamber the device will display following commands:

After pressing „OK"

The above command is displayed for several seconds during which the measurement of the sample is proceeded.
This is why the device should not be touched at that time and it is highly recommended to put the meter on a stable surface and secure it from any shocks.

Shortly after that communicate, measurement results will be presented including grain humidity in percents and temperature measured by a sensor placed on the bottom of the chamber.

After finishing of the measurement process the dosage tube can be put away and the grain sample should be removed from the chamber. (The device is quite heavy so while cleaning the chamber we recommend to hold the device in both hands).

To repeat the measurement of the same sample remove grain from the measurement chamber and put an empty dosage tube over it. Only then you can press **OK**.

LIST OF SPECIES AND MEASURING RANGES

CHAPTER 5

List of species and measuring ranges:

canola	4.0% – 20.0%
rye	9.0% – 24.0%
variety wheat	9.0% – 24.0%
common wheat	9.0% – 24.0%
spring barley	9.0% – 24.0%
triticale	9.0% – 24.0%
corn	9.0% – 24.0%
oat	9.0% – 24.0%

Measurement ranges can extend or shorten a little depending on temperature readings shown by the device.

To enter the additional species you need in your GMM pro, contact us:
e-mail: agri@draminski.com
tel: +48 89 675 26 00

Current list of all available species is available on the manufacturer's website **www.draminski.com** in **Products / Moisture Meters / GMM pro**.

BATTERY REPLACEMENT

CHAPTER 6

The meter automatically informs about low battery level with a communicate **“low battery”** on the display.
The device is powered by a standard alkaline 9V battery 6LF22 type.

To replace a discharged battery with a new one you should:
- open battery cover on the bottom side of the instrument and remove the old battery,
- insert a new battery according to “+” and “–“ signs shown on the bottom of the battery compartment,
- close the battery cover.

If the battery is weak (the **„low battery”** message will show) it is impossible to perform any operations / measurements on the device.

Please use only good quality alkaline batteries!

TECHNICAL DATA

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CHAPTER 7

Unit weight	1595 g (with battery)
Dimensions	25.0 x 16.0 x 12.0 cm
Sample loading	semi-automatic, using dosage tube with slider
Sample volume	210 ml
Moisture measurement method	weight-capacity
Display	LCD, alphanumeric 2 x 16 digits
Keyboard	membrane
Power supply	1 x 9 V alkaline battery, type 6LF-22
Battery low indication	Automatic
Power input	~20 mA
Estimated working time on one battery pack	about 28h
Measurement control	Single chip microcomputer
Accuracy of moisture content measurement	in use ±0,8% in range to 10% of moisture level, above 10% ±0,04 of measured value +0,4% (for corn ±0,9% in range to 10% moisture level ±0,05 of measured value +0,4%)
Accuracy of temperature measurement	± 1°C
Measurement resolution	temperature – 1°C, moisture – 0,1%
Temperature compensation	Automatic
Recommended working temperature	from 10°C to 35°C
Recommended storage temperature	from 5°C to 45°C

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DRAMIŃSKI S.A.
Wiktora Steffena 21
11-036 Szabruk, Poland
Tel. +48 89 675 26 00
E-mail: agri@draminski.com
www.draminski.com

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