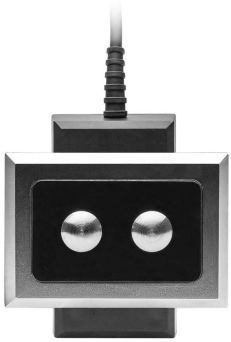
DRAMIŃSKI
TECHNOLOGY

MOISTURE METER FOR HAY AND STRAW BALERS



INSTRUCTION MANUAL

EN

ISO 9001 | CE

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INTRODUCTION

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CHAPTER 1

Draminski has developed an invaluable farming tool which enables the moisture content of hay and straw bales to be both simply and accurately measured. The regular monitoring of moisture levels is essential in the production of high quality hay.
This is because moisture content is the major factor to affect quality and therefore the price achieved. Regular and reliable access to this information is critical to the timing of harvesting. Moreover, once harvested the quality of the hay can be maintained in storage through the continued monitoring of moisture levels. Such monitoring can help prevent fungal attack and rot through the early detection of increased moisture content.

In addition, the ability to measure moisture content provides invaluable information when buying and selling hay. This is because it allows for an accurate assessment of the quality and therefore its corresponding value to be determined. Finally it is also an extremely useful tool in the calculation of livestock rations, as livestock productivity performance is dependent upon the correct consumption of dry matter.

DRAMINSKI MOISTURE METER for HAY AND STRAW BALERS measures changes occurring in the electrical conductivity of hay or straw, and then converts it into a percentage moisture reading which is shown on the LCD display.

It provides both moisture and temperature readouts.

The device is installed directly onto the baler. It is designed to give immediate results and is both easy to use and maintain.

DESCRIPTION

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CHAPTER 2

DRAMINSKI MOISTURE METER for HAY AND STRAW BALERS consists of the following components :

1. A yellow electronic display module, a LCD screen and membrane keyboard.

2. A choice of suction cup or a sticker to fasten the display module inside the tractor cabin.

3. A power cable which connects to the car cigarette lighter connection plug.

4. A sensor kit with two probes measuring moisture content, equipped with a cable connecting it to the display module.

ASSEMBLY AND INSTALLATION

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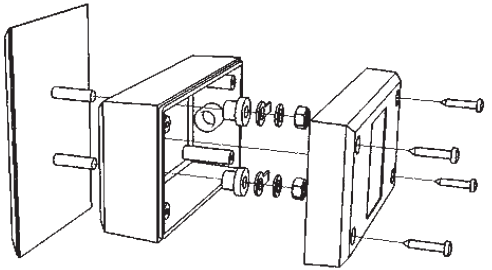
CHAPTER 3

1. Assemble the sensor kit together with probes onto the baler as shown in the diagram below. The plate with two probes should be placed directly onto the outlet part of the baler.



Assembly and installation of probes on the baler.

2. Connect the sensor kit to the yellow electronic display module by using the connecting cable attached to the rear of display unit.
3. Plug the display module into the power source by using the power supply cable.

4. Place the display module in the cabin of the tractor (for example on window panes) by means of the suction cup; use the small lever to suck out excess air. If the surface is not smooth enough, you can use the sticker instead.

5. Press the ON/OFF button. If there is no hay or straw in the outlet part of the baler, the display screen will show “LO”.

MEASUREMENTS

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CHAPTER 4

1. As soon as the straw or hay reaches the probes, the percentage of moisture content will be displayed continuously on the screen.

The meter can measure moisture content in the range from 10% to 80%. If the reading is lower than 10%, the unit will display “LO” on the screen. If the result is over 80%, it will display “HI”.

2. Press the **„mem”** button to store the result. The device can memorize and record up to 50 measurements.

After the required number of measurements have been taken, you can find out the average result by simply pressing the **„avr”** button, or minimum and maximum results by pressing respectively the **„min”** or **„max”** buttons.

3. Press the ON/OFF button to switch off the device.

If no button is pushed, and the moisture content value remains unchanged for three minutes, the device switches off automatically.

MODIFYING THE MOISTURE INDICATIONS READINGS

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CHAPTER 5

Modifying the moisture indications readings

This option is used for the modification (adjustment) of moisture readings by increasing or decreasing the displayed value (of the device) by the same value in the entire measuring range. However, by modifying the displayed values we are changing the measuring range limits, i.e., when we make an adjustment by „+2%" the measuring range will change from 10%-80% to 12%-82%.

The modification is made, if the user finds that for a given force of the pressed bale the tool has a tendency to over- or understate the results by the similar value in the entire moisture range. This modification is useful when the bales of hay/straw are poorly or very hard pressed, because the HMM curve is based on an average compression strength.

Procedure:

1. Press and hold four buttons at the same time: **"MAX"**, **"MIN"**, **"T/M"** and **"ON/OFF"**.

2. Hold 4 buttons pressed for about 1 second. Then release the buttons – letters **"CAL"** will be displayed.

3. Using **"MAX"** and **"MIN"** buttons set the number 399 and press **"T/M"**.

4. When the display shows „0" the device is ready for calibration.

5. Enter the requested adjustment, keeping the range from – 5 % to +5 % (e.g. „+2" or „–5")

6. Confirm the entered value with **„T/M"** button, then turn off the device.

An example of the correctly entered modification

1. When you have entered „–5", then each time the device is turned on, the display will show the following message **„CAL"** –5. This means that the device is changing the measuring range from 10%-80% to 5%-75%.

Back to the factory settings/cancelling the modification

Procedure:

1. Press and hold four buttons at the same time: **"MAX"**, **"MIN"**, **"T/M"** and **"ON/OFF"**.

2. Hold 4 buttons pressed for about 1 second. Then release the buttons – letters **"CAL"** will be displayed.

3. Using **"MAX"** and **"MIN"** buttons set the number 399 and press **"T/M"**.

4. The display will show the previously entered value of the modification, e.g. "+2". Enter "0" and confirm the entered value with **„T/M"** button, then turn the instrument off. The device returns to factory settings, i.e. the measuring range will be 10%–80%.

REMARKS

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CHAPTER 6

- In order to maintain the best accuracy, the device should be kept clean and handled with care and should not be exposed to extremely high temperatures.

- The results are more reliable if the bales are in direct contact with the probes. If the bales are not compressed tightly enough and their density is low, the results may be inaccurate as there will be no direct contact between the probes and the straw or hay.

- When not in use, the device should be stored in a dry place at room temperature. The probes and the cable connectors should be kept away from water.

TECHNICAL DATA

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CHAPTER 7

Dimensions of display:	height 21 cm (with holder)
	width 8,5 cm
	length 11,5 cm
Length of cable between the display module and sensor kit:	10 meters
Length of power cable:	1,8 meters
Weight:	1070 g (probe HMM-S 600 g, display 470 g)
Required voltage:	12 volts (type car cigarette lighter)
Display:	LCD, 3.5 digits, highlighted
Moisture measuring range:	10 – 80%

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