

# Grain Moisture Meter EE-KU for Corn



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Grainsure



**GRAINSURE**



## User Guide

EE-KU GRAINS MOISTURE TESTER.



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# Equipments



- 1) Moisture Display (%)
- 2) On-Off button(Button for measurement)
- 3) Adjusting knob
- 4) Starting point value
- 5) Chamber
- 6) Cup
- 7) Digital scale
- 8) Pouring funnel
- 9) Packaging box
- 10) Thermometer

## Specification

- 1) Manufacturer's mark : **Grainsure**
- 2) Model : **EE-KU**
- 3) Grain Type : .....
- 4) Weight of sample : .....
- 5) Measurement range : **12.0 – 40.0%** (Varies by grain type)
- 6) Accuracy :  **$\pm 0.5\%$  (range 12.0-20.0%) ,  $\pm 2.0\%$  (range above 20.0%)**
- 7) Operating temperature : **10 – 45 °C**
- 8) Grain Weight Measurement : **Digital scale with 0.1g accuracy.**
- 9) Temperature compensation method : **see Table**
- 10) Grain Temperature Measurement: **Glass Thermometer**
- 11) Moisture measurement Principle : **Capacitance.**
- 12) Display : **3 digit LCD 12.0mm. Height.**
- 13) Power : **9V battery size 6F22**
- 14) Dimension : **width 116 mm. length 120 mm. height 150 mm.**
- 15) Material : **Metal casing**

## How to use

### 1) Preparation of the measurement machine

Prepare the measurement machine

Ensure that the chamber is empty before, pressing the on-off button by using the left hand and use the right hand to gently turn the adjustment knob until the displayed value matches the preset value indicated to the right of the knob. Once the desired setting is achieved, the device is ready to measure the moisture.



### 2) Weighting sample

Turn on the digital scale and check that the unit is set to grams (g). Place the measuring cup on the scale and press the Tare button to reset the scale to 00.0 g



Pour the sample according to the specified weight for each type of grain

### 3) Pouring the grains

Ensure that the chamber is empty. Then, place the pouring funnel onto the chamber, as shown in the diagram.



**Note:** To ensure accurate and precise moisture readings, it is recommended to pour the grains into the chamber of moisture meter slowly (but not one grain at a time). Avoid pouring the grains too quickly as this may result in a slightly lower moisture reading than the actual value. Consistent and slow pouring will minimize variations between measurements.



4) Reading moisture value (at the grain's temperature 28-32 °C)

Remove the funnel then press the button to display the moisture content



5) Pouring out the grains

hold the device with one hand while pouring out the grains as shown in the figure.





## 6) Fine Measurement

Since the device is calibrated to provide accurate moisture readings at a grain temperature of 30°C, readings will be approximately 0.15% higher for every 1°C above this temperature.

Therefore, for a more precise reading, before emptying the grains, insert a thermometer and wait until the temperature stabilizes (approximately 1 minute). Consult the grain temperature and adjustment table (refer to page 8) with the recorded temperature.

If the temperature is above 30°C, subtract the value from the table from the machine's reading to get the actual moisture content.

If the temperature is below 30°C, add the value from the table to the machine's reading to get the actual moisture content.

**Example 1:** If the machine reads 15% moisture content and the thermometer reads 35°C, according to the table, subtract 0.58%. Therefore, the actual moisture content is  $15\% - 0.58\% = 14.42\%$ .

**Example 2:** If the machine reads 16% moisture content and the thermometer reads 20°C, according to the table, add 1.15%. Therefore, the actual moisture content is  $16\% + 1.15\% = 17.15\%$ .

## Low Battery Indication

If the letter "BAT" appears on the front of the screen when you press the reading button, it indicates that the battery is low. Replace the battery immediately. Similarly, if the displayed value is unstable after turning on the device, replace the battery immediately. If the problem persists after replacing the battery, please contact Grainsure Company.

## Precautions

This grain moisture meter is a sensitive instrument. Please observe the following precautions:

1. Do not remove the bottom base unless necessary, as this may affect the accuracy of the moisture measurement.
2. Avoid exposing the device to direct sunlight or excessive heat for extended periods. This can shorten the device's lifespan (above 50°C).
3. Avoid dropping or bumping the device.
4. Do not pour wet grain samples into the device.

**Table 1 : Grain Temperature and Moisture Correction**

| Grain<br>Temp(°C) | Moisture Correction<br>(+/- %) | Grain<br>Temp(°C) | Moisture Correction<br>(+/- %) |
|-------------------|--------------------------------|-------------------|--------------------------------|
| 15°C              | +1.80                          | 33°C              | -0.34                          |
| 16°C              | +1.67                          | 34°C              | -0.46                          |
| 17°C              | +1.53                          | 35°C              | -0.58                          |
| 18°C              | +1.40                          | 36°C              | -0.69                          |
| 19°C              | +1.28                          | 37°C              | -0.75                          |
| 20°C              | +1.15                          | 38°C              | -0.80                          |
| 21°C              | +1.02                          | 39°C              | -0.86                          |
| 22°C              | +0.90                          | 40°C              | -0.95                          |
| 23°C              | +0.78                          | 41°C              | -1.05                          |
| 24°C              | +0.67                          | 42°C              | -1.14                          |
| 25°C              | +0.55                          | 43°C              | -1.23                          |
| 26°C              | +0.43                          | 44°C              | -1.33                          |
| 27°C              | +0.32                          | 45°C              | -1.42                          |
| 28°C              | +0.21                          | 46°C              | -1.51                          |
| 29°C              | +0.10                          | 47°C              | -1.60                          |
| 30°C              | 0.00                           | 48°C              | -1.65                          |
| 31°C              | -0.13                          | 49°C              | -1.70                          |
| 32°C              | -0.24                          | 50°C              | -1.76                          |

# Digital scale user manual

## Model MH-Series



## Control panel

1. [ON/OFF] Power button
2. [TARE] setting the weight to zero
3. [LIGHT] Turn on/off display backlight.
4. [UNITS] Unit selection
5. [PCS] 1111 Piece Counting Function

The digital scale provided with the grain moisture meter is a highly accurate device. To ensure that the scale measures the weight of the grain quickly and accurately, it should be used and maintained as follows:

## Precautions for Use:

1. Do not place items on the scale that exceed its weight capacity. This model should not exceed 1000 grams
2. Place the items to be weighed gently on the scale (do not press).
3. Avoid shaking or dropping the scale.
4. Store the scale in a clean, dust-free environment, away from excessive heat, and avoid using it under direct sunlight for extended periods.
5. If the scale will not be used for a long time, remove the batteries, wipe the scale dry, place it in a plastic bag, and store the batteries separately in another bag. Do not store them together in the same bag.

## Preparing the Scale:

- 1) Open the cover of the scale and place it on a flat, stable surface that does not tilt or vibrate. The surrounding air should be still, with no wind, as this can cause the readings to fluctuate.
- 2) Press the [ON/OFF] button and wait for the display to show "0.0". The backlight will also turn on. If the display is clear, you can turn off the backlight if desired.
- 3) The scale measures grain weight in grams (g). Check if the unit is set to grams (g). If not, press the [UNITS] button until "g" appears.
- 4) Once the display shows "0.0" and the unit is set to grams (g), the scale is ready to weigh.



- 5) Test by placing an item on the scale, such as an empty cup. If it reads 10.0 grams, remove and replace the cup to see if it reads 10.0 or 10.0 grams. A deviation of  $\pm 0.1$  is normal. The scale is now ready for use.

## Weighing grain :

The grain moisture meter typically uses 100 grams of grain for measurement, but it could also be 50 or 20 grams, depending on the type of grain specified in the manual (page 11).

- 1.) First, place the empty measuring cup (for the grain) on the scale and reset the weight to "0.0" (Tare). There are two ways to do this:
  - 1.1) When the scale is already on: Place the empty cup on the scale, for example, if it reads 20.0 grams, press the [TARE] button. The scale will then read "0.0." (If the cup is removed, the scale will read -20.0.) When the cup with grain is weighed, the reading will only display the grain weight without needing to subtract the cup's weight.
  - 1.2) When the scale is off: Place the empty cup on the scale before turning it on. Once the scale is turned on, it will automatically adjust and display "0.0."
- 2.) When the empty measuring cup is on the scale, and the scale reads "0.0" in grams (g), the scale is ready for you to place the grain in the cup to measure their weight. (If the scale is left unused for more than 30 seconds, it will automatically turn off.)

#### **Digital Scale Features:**

1. Maximum weight capacity of 1000 grams with 0.1-gram precision.
  2. Can Tare up to 1000 grams for container weight.
  3. Operates within a temperature range of 0-40°C.
  4. Automatically turns off after 30 seconds of inactivity.
  5. Powered by two AAA batteries.
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