<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. UNPACKING</td>
<td>02</td>
</tr>
<tr>
<td>2. GENERAL INFORMATION</td>
<td>03</td>
</tr>
<tr>
<td>3. FEATURES</td>
<td>04</td>
</tr>
<tr>
<td>4. MAIN COMPONENTS</td>
<td>06</td>
</tr>
<tr>
<td>5. USE INSTRUCTIONS</td>
<td>07</td>
</tr>
<tr>
<td>6. FIRST TIME START UP</td>
<td>08</td>
</tr>
<tr>
<td>7. STANDARD CHARTS SELECTION / SELF-TEST</td>
<td>09</td>
</tr>
<tr>
<td>8. MAIN SCREEN</td>
<td>10</td>
</tr>
<tr>
<td>9. TEST ID</td>
<td>10</td>
</tr>
<tr>
<td>10. RESULTS LOG</td>
<td>10</td>
</tr>
<tr>
<td>11. SETTINGS MENU</td>
<td>10</td>
</tr>
<tr>
<td>12. SPECIAL FUNCTIONS</td>
<td>11</td>
</tr>
<tr>
<td>13. SETTINGS</td>
<td>11</td>
</tr>
<tr>
<td>14. CHARTS SELECTION</td>
<td>11</td>
</tr>
<tr>
<td>15. CHARTS INSTALATION</td>
<td>12</td>
</tr>
<tr>
<td>16. FOREIGN MATERIAL</td>
<td>13</td>
</tr>
<tr>
<td>17. DAMAGED KERNEL</td>
<td>13</td>
</tr>
<tr>
<td>18. MOISTURE TEST</td>
<td>12</td>
</tr>
<tr>
<td>19. CARE AND MAINTENANCE</td>
<td>14</td>
</tr>
<tr>
<td>20. SERIAL COMMUNICATION</td>
<td>15</td>
</tr>
<tr>
<td>21. WARRANTY</td>
<td>16</td>
</tr>
<tr>
<td>22. TERMS OF USE</td>
<td>18</td>
</tr>
<tr>
<td>23. OPERATING SYSTEM LICENSE</td>
<td>19</td>
</tr>
<tr>
<td>24. REGISTRATION CARD</td>
<td>20</td>
</tr>
</tbody>
</table>
We are pleased to offer you the finest technology in grain quality control. Your 999 E® moisture meter went through an extensive quality control process to ensure its reliability and accurate results. Thank you for choosing MTC Moisture Analyzers.

Please unpack your instrument carefully and in case you find any damage or noncompliance, you should put it back into the original package and contact your sales representative for replacement.

MTC - UNITED STATES
Missouri Moisture Analyzers LLC
1402 N. College Dr. CIE Bldg - Room 1229
Maryville - MO  64468
Phone: 1 (660)562-0203
sales.usa@motomcogroup.com

MTC - CANADA
Canada Moisture Analyzers Inc.
292 Sharp Blvd
Winnipeg, MB R3J 2K6
Phone: 1(204)615-1418
sales.ca@motomcogroup.com

Package Contents:
01 999 E® moisture meter;
01 Grain Cell;
01 Dump cell;
01 Dump cell adapter;
01 Power Supply (9V-2A);
01 Operating Manual;
MTC 999E® is a bench top instrument designed to measure grains, seeds and a wide variety of other product’s moisture content. Based on North American Standards (USDA and CGC), all the instruments must provide results equivalent to the air oven, which is the reference method.

The moisture content reading process uses a technology based on the water dielectric properties. Using calibration charts, the changes on the dielectric constant are converted to moisture percentage.

Designed to provide fast and accurate results, 999E® has also a simple and intuitive operating interface, offering the user a color screen with touch panel to make the interaction with the instrument even easier. Built to meet or exceed the precision, security and performance demands for grain moisture meters described in the NIST (National Institute of Standard and Technology) Handbook 44, 999E® comes loaded with the USDA and CGC calibration charts.
MTC 999 E® features:

1. Moisture measurement based on water dielectric properties;
2. Integrated precision scale;
3. Integrated thermometer;
4. Security protection to metrological parameters access;
5. Integrated thermal printer;
6. Full range voltage input (100 – 240 VAC);
7. Output port for external communication;
8. Calibration charts available for more than 250 different types of grains;
9. Meets or exceeds requirements set by NIST Handbook 44, 2012;
10. Single measurement or 03 readings average for greater precision;
11. Color LCD screen with touch panel;
12. Customized ID to each moisture read;
13. Frozen and hot grain temperature compensation;
TYPE A USB PORT SHALL ONLY BE USED TO RECORD YOUR RESULTS TO AN EXTERNAL FLASH DRIVE.

TYPE B USB PORT IS THE COMMUNICATION OUTPUT. TO ACCESS IT, CONNECT TO YOUR COMPUTER AND FOLLOW THE INSTRUCTIONS ON THE SCREEN.
MAIN COMPONENTS

DUMP CELL
It is where the operator pours the sample in. A mechanism made of two wings holds/releases the sample into the grain cell.

GRAIN CELL
After receiving the sample from the dump cell, the grain cell is responsible for measuring the sample moisture and temperature. The grain cell shape compensates the sample compactation and superficial moisture.

SCALE
Attached to the grain and dump cell, the scale is an important part of our equipment reliability and precision. It reads the necessary sample amount and prevents the operator from tampering with the moisture results, by double-checking the sample weight.

MAIN HOUSING
The electronic circuits of the 999E® moisture meter are completely isolated inside the instrument enclosure, carefully developed to withstand the rigors of field usage.

The ON/OFF Switch, communication ports and power inlet are located in the back of the unit.

COLOR LCD AND TOUCH PANEL
Equipped with a touch panel over a color 3.5” LCD screen, 999E® offers the user an easy and intuitive interface.
999E® was developed to perform quick and accurate moisture readings on different grain samples, however correct samples preparation is important to achieve optimum performance. To do so, please follow the operation instructions below.

PREPARING THE SAMPLE

The moisture retained in a large amount of grain can vary considerably. To obtain a representative sample, you must collect from different batches and mix together before proceeding to the moisture reading. For more accurate results, we suggest the use of a grain divider, if you don’t have one, use a similar process to assure that the sample is equally divided. Any foreign material mixed with the sample can lead to erratic reading, so sample purity is important to obtain an accurate result.

According to NIST Handbook 44, grain temperature is an important parameter to assure that the moisture content is constant. Below there are some parameters described in the NIST handbook:

- Ambient/Meter Temperature Range: 10°C to 40 °C (50°F to 104°F)
- Sample Temperature Range: 0°C to 40 °C (32°F to 104°F) *
- Temperature difference between Meter and Sample: 10 °C (50 °F)
- (05) Five minutes warm-up time for equipment stabilization and accurate results

* The equipment is able to measure frozen samples, in that case you still getting the test results, but a message will pop up warning you that the temperature is outside the suggested range.
At the very first power up, the instrument asks the user to choose the desired language. Touch \( \rightarrow \) until your choice is displayed. To set it as the system language touch \( \text{OK} \).

After the language is set, please read the Terms of Use\(^1\) carefully, to navigate through the text please use the arrows on the right side of the screen. After you reach the end of the page, a screen will pop-up, if you agree to the terms please touch the \( \text{YES} \).

The name of the company that owns the instrument can be recorded on the system. To do so please use keyboard on the screen and after you finish touch \( \text{OK} \).

After the name is saved, a screen will pop-up with a message asking for confirmation, If you agree, touch \( \text{YES} \).

\(^1\)The terms of use can also be found on the last page of this manual. (Pg. 18)
999 E® has 13 built-in charts groups (USA, USA NTEP, CGC English, CGC French, South America, Mexico, Bolivia, Argentina, Brazil, Europe English, Europe French, Europe German, Europe Italian).
To navigate through the options, use the arrows.

After the chart group is set, a screen will pop-up with a message asking for confirmation of the parameters you have chosen. If you agree, touch **YES**.

### SELF-TEST

Self-test verifies all the important components and software parameters, some of them are:

1. Configuration parameters integrity;
2. Memory;
3. Time and date;
4. Equipment calibration data integrity;
5. Scale.

At the unlikely event of an error, a message and these two button will show up on the screen. In most cases, it is just an alert that can be easily solved by the user. If you can`t solve the issue by yourself, please contact the most convenient MTC office for further assistance.

- Cancels the self-test and returns to technical service screen.
- Restarts / Retry the self-test process.
Use the keyboard to write down the ID. After finished you can add a second by touching EXIT or exit touching EXIT.

*Note that the ID is kept just for one single reading, which means that you need to enter it every time you want it shown on the ticket.

**To make sure your ID was saved into the memory, check if the ID has turned red, if it still green, means no ID was saved.

The 20 most recent reading are stored into the equipment memory for a quick access log.

To navigate through the results, use arrows on the bottom of the screen and to return to the home screen touch EXIT.

Print the log shown on the screen
Print all the logs in the memory

Foreign material and damaged kernel options
Return to home screen
Advanced settings screen
Grain charts already loaded from the memory
**OPERATING MANUAL / 11**

---

**CHARTS SELECTION**

Please select the function:
- FOREIGN MATERIAL
- DAMAGED KERNEL
- FOREIGN MATERIAL
- DAMAGED KERNEL

- Damaged kernel screen.
- Foreign material screen.

To return to the previous screen use ↩️.

---

**SETTINGS**

- 1:40 PM
- Language:
  - English
- Unit TW:
  - kg/hL
- Temperature:
  - °C

- AVERAGE
- NO

Use + and - to adjust the time, for hours use the left icons and for minutes the ones on the right.

Touch ☞ to change the option on screen.

It is possible to get the average moisture reading from the 03 sequential dumps.

You can choose to have it enabled all the time, by choosing YES or have enabled only when the moisture is over 20%.

When NO is chosen, the average mode is turned off.

Celsius and Fahrenheit are available.

When available, the Test Weight (TW) result can be shown in 5 different units:
- kg/hL
- lb/bu
- lb/A bu
- lb/W bu
- g/0.5l

There are 6 languages available:
- English
- Spanish
- German
- French
- Italian
- Portuguese

Load charts from equipment memory.

Restricted area access.

---

**CHARTS SELECTION**

- USA
- BRAZIL

There are 13 built-in charts groups (USA, USA NTEP, CGC English, CGC French, South America, Mexico, Bolivia, Argentina, Brazil, Europe English, Europe French, Europe German, Europe Italian).

To navigate through the options, use the arrows.

---

**CAUTION**

With this standard the equipment works:
- Temperature: °F
- USA Standard
- English language

Do you want continue?

- Yes
- No

---

**MTC® MOISTURE ANALYZERS**

---

**PLEASE SELECT A STANDARD CHART**

- USA
- BRAZIL

---
After selecting the standard you will use, at least one chart must be selected. The charts are separated into groups to simplify the user access. Touch the group button that contains the chart you want to select.

On the top of the screen, there are two buttons: ✓ and ✗. This option allows the user select or deselect every chart in this group. To navigate through the charts, use the scrollbar on the right side of the screen. Each chart also has the same button, in case you need only some of the available charts in that group. After all the necessary charts in that group are selected, touch OK and return to the charts groups screen. In case you need to choose more charts from other groups, repeat the same process above and when you are done, touch OK to save your selection.

Only the groups that contains charts loaded from the memory will shown in on this screen. Select the group you want to access the charts stored inside.

Use the arrows at the bottom to navigate through the available charts and touch OK to select.
FOREIGN MATERIAL

This equipment is able to calculate the foreign material percentage present on a given sample. Note that you need to manually sort out the foreign material from the sample. Follow the instructions on the screen to get the calculation done. After finished you have the option to print the results using the integrated printer. Always keep the black bar within the green one, this indicates that you are using the correct amount os sample.

DAMAGED KERNEL

Up to 10 different damaged kernel types can be recorded with this function. Note that you need to manually sort out the foreign material from the sample. Follow the instruction on the screen to get the calculation done. After a reading result is shown you have the option to do another one, in case you have more than one type of damaged kernel. The results can be printed out using the integrated printer.

MOISTURE TEST

Depending on the commodity selected, one of the screens below will be shown, follow the instructions to get the moisture reading.

Place the dump cell and the adapter on top of the grain cell and pour the sample until it reaches 100%, the tolerance is ±0,2%, which means after you reach any value within 99,8% and 100,2% you just have to wait until the equipment beeps, after the beep you must press the dump button and wait for the result screen.

Place the grain cell inside a pan and fill it, at a constant speed and strike the excess with a ruller. Filling the dump cell properly is very important to get an accurate Test Weight result. After filled, place the dump cell on top of the grain cell, push the button and remove the grain cell and wait for the result screen. Don’t fill the dump cell when it is placed over the grain cell, it must be done on the side. Touch the animation on the screen to see the procedure.
**CARE AND MAINTENANCE**

999 E® is factory calibrated with a MTC Standard Meter, which undergoes periodic verification to assure that it meets the tolerances defined by the USDA (United States Department of Agriculture) and CGC (Canadian Grain Commission).

To assure its accuracy, the instrument must be periodically submitted to MTC`s Service Center, where it will be calibrated and fully checked according to our technical check-list.

We recommend that the instrument be submitted yearly for maintenance, during the off season, when its usage is reduced.

The presence of foreign material inside the cells directly affects the instrument accuracy. It is recommended to clean the accessible parts with a damp soft cloth. The use of alcohol or other chemicals can damage the instrument.

Keep the instrument indoors and away from the external environment. Avoid strong impacts to the external enclosures, as it can directly affect the load cell (weighing component).

Do not let liquids contact electrical parts, and avoid the use of cordless phones, 2 way radios and other RF equipment near the instrument, since the RF can cause interference on the measurement.

For maintenance, please put your instrument in the original box, with the power cable included. The customer must pay shipment cost.

Note

To get your MTC service center address, please check page 02.
The instrument is equipped with an internal RS-232 module. To connect it to your PC, please use a USB cable (see figure). It is necessary to install the module driver, which you can find at our website www.mtcmoisture.com in the first page you will find a link called RS232 PC driver.

Serial Port Settings:

- Baud rate = 9600
- Data Bits = 8
- Parity = none
- Stop bit = 1
- Flow control = none

OUTPUT RECEIPT SAMPLE

<table>
<thead>
<tr>
<th>MOD E L</th>
<th>9 9 9 F B</th>
</tr>
</thead>
<tbody>
<tr>
<td>S / N :</td>
<td>F B 0 0 0 0 0</td>
</tr>
<tr>
<td>S/W:</td>
<td>FB1.0</td>
</tr>
<tr>
<td>F/W:</td>
<td>FB1.0</td>
</tr>
<tr>
<td>CALIBRATION DATE:</td>
<td>01/01/2011</td>
</tr>
<tr>
<td>CIA:</td>
<td>XXXX</td>
</tr>
<tr>
<td>Date:</td>
<td>01/01/2000</td>
</tr>
<tr>
<td>Time:</td>
<td>00:00</td>
</tr>
<tr>
<td>SAMPLE:</td>
<td>1</td>
</tr>
<tr>
<td>PRODUCT:</td>
<td>SOYBEAN MEAL</td>
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</tbody>
</table>

------------------------
| MOISTURE: | 14.5% |
| TEMPERATURE: | 77.9F |
| TEST WEIGHT: | N / A |
| FOREIGN MATERIAL: | N / A |
| DAMAGED KERNEL: | N / A |

------------------------

obs : xxxx = company name
YYYYYYY = manufacturer
Missouri Moisture Analyzers, LLC. (MMA), and Canada Moisture Analyzers, Inc. (CMA), guarantees each new analyzer sold by it to be free from defects in material and workmanship. MMA and CMA obligations under this warranty are limited to repairing, or at company option replacing at the company factory, any part or parts thereof, which shall, within 1 (one) year after the delivery of the equipment to the original owner, be returned to MTC MMA or CMA, with transportation charges prepaid, and which examination shall disclose to MTC’s satisfaction to have been thus defective.

This warranty shall not apply to any instrument which has been repaired or altered outside of the manufacturer’s factory or service center in any way so as, in the judgment of the manufacturer, to affect the instrument’s stability or reliability, or which has been subject to misuse, neglect, or accident, or which has had the serial number altered, defaced or removed. Nor shall this warranty apply to any instrument which has been connected in a manner other than in accordance with the instructions furnished by the manufacturer.

This warranty will be void if any equipment has been repaired or altered by an unauthorized person.

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. MMA and CMA neither assumes nor authorizes any representative or other person to assume for it any liability in connection with the sale of this instrument. MMA and CMA makes no warranty or representation as to the accuracy of any calibration chart supplied or used with this instrument.

In no event shall Missouri Moisture Analyzers LLC or Canada Moisture Analyzers, Inc. be liable for any special, indirect, incidental, or consequential damages and its liability under the warranty shall be limited solely to the repair or replacement of parts as stated above.
This equipment is warranted against any manufacturing defects, considered the conditions set by the Operation Manual that accompanies the equipment specified in the warranty from the date of the invoice of sale to the final consumer and will include the replacement of parts and labor in the repair due to manufacturing defects.

Both the finding of defects and necessary repairs will be performed by a MTC Service Center closest to the customer. The addresses are available at www.mtcmoisture.com

**Warranty Use**

It is necessary for the customer to send the completed Registered Card listed on the last page of the Operating Manual to the nearest MTC office to ensure the warranty.

**The warranty is automatically void if:**

- The equipment is not installed and used according to instructions contained in the Operation Manual.
- The equipment has been damaged by accidents or natural hazards, abused, used carelessly, improperly connected to the electrical grid, exposed to chemical and/or corrosive presence of water, damaged by insects or rodents, used in a way other than in accordance of the Operation Manual or by modified or repaired by persons or entities not accredited by MTC.
- There are removal and/or alteration of serial number and/or sealing device of the equipment.

**The warranty does not cover:**

- Cost of labor, materials, parts and adjustments necessary for the location preparation for installation of equipment, in other words, electric grid, electrical outlet, communication cables, connectors, mechanical supports, grounds, stabilizers, etc.
- Replacement parts for normal wear and tear, whether mechanical parts, electronics, housing, and the assembly of the parts used in the repair and the consequences arising from these incidents.

- Equipment or parts that have been damaged as a result of transportation or handling accidents, dents, scratches, cracks or acts and effects of natural disasters.

- Malfunctions or burning of components due to problems in electrical line.

- Removal, packaging, transporting and insuring the equipment for repair.

**Notes:**

- In no case shall MTC be responsible for loss of productivity, data, direct or indirect damages, claims by third parties, strikes or any other losses or expenses, including lost profits. If by reason of law or agreement, MTC were to be responsible for damage caused to the customer, the overall limit of such responsibility shall be equivalent to 5% of the price of equipment that caused the damage, in view of the special circumstances under which this equipment was sold.

- MTC does not authorize any person or entity to assume any other responsibility on the warranty of their products beyond what is expressed here.

- This is an electronic instrument, and it should be handled as such.

Parts and/or accessories that are replaced under warranty become the property of MTC.

- Any questions about the warranty conditions should be treated directly with MTC.

I have read the above information.
The operating system of your MTC 999E® moisture meter is a original licensed product and is subject to a license agreement enforcement. Therefore it is important to keep this manual which is the bearer of the serial number of the operating system license.

Serial number: 

[Blank space for serial number]
When you receive your equipment, please complete and return the registration card. Motomco has a file of all 999 E® moisture meters sold by their serial numbers. With your help, your moisture meter will be recognized by the buyer’s name and location.

**Registration Card**

MTC 999 E® Moisture Meter

Serial number: ________________________
Buyer’s name: __________________ Company: ________________________________
Address: ______________________________
City: __________________ State: ________________________________
Zip Code: ______________________________
Telephone number: ______________________________
Date of purchase: __/__/___