



Operation Manual

MA Moisture Meter



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1. Brief Introduction

1.1 Safety precautions



For safe and reliable use of moisture analyzer, please observe the following precautions

·The instrument is suitable for the determination of moisture content in the sample. Any improper operation may result in personal danger and damage to the instrument or other equipment during the use of a rapid measuring instrument.

·Please confirm whether the input voltage size and plug type on the tag match with the AC power supply that is used locally.

·The instrument is a 3 pin with grounded plug, which is forbidden to disconnect the instrument.

·Please make sure that the power cord is plugged in and does not cause any obstacle or danger of tripping

Please do not operate under dangerous, humid or unstable conditions.

·Please unplug the power supply when cleaning the machine.

·During the test, please do not change the size and frequency of the input power supply voltage (such as do not switch between 220V and 110V)

·Please make sure that there is enough space around the water meter, at least 1 meters above the top.

·The water meter must be operated only by trained, and more familiar with the performance and equipment of the test samples.

·Please use the relevant safety equipment to operate the water rapid measuring instrument, such as safety glasses, gloves, protective clothing and protective masks.

·Please do not make any changes to the components and other parts of the moisture analyzer.

·The after sale service shall be provided only by the professional personnel authorized by the factory



Rapid determination of moisture content in heating mode

·Do not place any combustible material above, below or beside the moisture analyzer.



·When the machine working, moving test samples to be cautious. Samples, heating elements and the surrounding may be very hot, easy to cause burns

Some samples need to be especially careful

·For any material that has a safe hidden trouble, please analyze the possible risks. We suggest that the rapid determination of moisture content should be responsible for the custody of the person

·Fire / explosion: Flammable or explosive gases or vapors that can be produced when heated in the form of a solvent, flammable or explosive. In the use of such samples, please work in a dry and low temperature environment so as to avoid fire or explosion

·Toxic / combustible: Contain toxic or corrosive substance only inside the ventilating cabinet for drying

·Corrosion: Once the sample containing the solvent is heated will evaporate, and the corrosive gas is released at the same time, so it is recommended to take a small amount of material to be tested.

Note: if any damage caused by the test of the above type of sample is

tested, the user shall be responsible for the

2. Installation

2.1 Location selection

·The surface of the operating table should be kept stable and the level should be maintained

·Select a safe and adequate ventilation. Samples with corrosive or toxic smoke and other hazardous materials need to be specially prepared to place

·Please try to avoid placing moisture fast measuring instrument in the temperature fluctuations, excessive humidity, air flow is unreasonable, vibration, electromagnetic field, heat or direct sunlight place

2.2 Installation of components

		
<p>1. Place wind proof cover</p>	<p>2. Place the sample tray support, rotate and position</p>	<p>3. The stainless steel sample plate is flat on the said plate bracket</p>

2.3 Connecting power

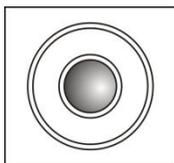
The power supply line provided by the power supply line is inserted into the power supply input slot of the back of the instrument, and the other end is connected with the power supply output socket.



Note: in order to obtain the best results, please use at least 30 minutes after power on.

2.4 Adjust level

All models are equipped with a level: level adjustment and two feet, to compensate for the subtle uneven in weighing operation on the table and the influence of the weighing result, when the blister is located in the central level when the instrument is completely.



Note: each position changes, the level must be re adjusted

3. Parameter

Environment

Technical parameters are valid in the following environment

Temperature: 10 degrees Celsius - 30 degrees Celsius; in 5 to 40 degrees Celsius in the environment to ensure that the operation, the extreme temperature does not guarantee the rapid determination of moisture content

Humidity: 80% - 15%, no condensation at 30

Warm-up: moisture analyzer connected to the power supply and wait for at least 30 minutes. When it comes back from the standby state, the water meter can be used immediately.

Power

Input AC voltage: 200VAC - 240VAC, 3A, 50Hz±1Hz

Power supply load: the maximum power is 350W in the heating process

Protection: protection from dust and moisture, pollution levels: 2 class

Specifications

Model	MA-50-1/110-1	MA-50-5/110-5	MA-50-10/110-10
Capacity (g)	50g/110g	50g/110g	50g/110g
Readability (g)	0.001g	0.005g	0.01g
Repeatability	0.02-0.1% (≥3g)		
Suggested sample	3-10g		
Heating time	0-99min		
Environment	10-40℃		
Interface	RS232		
Heating Temp.	50℃ to 180℃		
Moisture	0-100%		
Pan	100mm		
Outline	330mm * 180mm * 140mm		
N./G. Weight	3kg/4.5kg		
Heating	Halogen		
Packing	47*31*33cm/carton		

4. How to use

4.1 Attention

4.1.1 Moisture meter is precision analysis instruments, users should be careful operation, according to the sample should be evenly spread in the pan

4.1.2 The typical sample is 3-5g, tare before weighing

4.1.3 Please set the heating parameters (heating temperature, end), then weight the sample

4.1.4 In order to ensure the accuracy of the test, the sample is the best powder state, large particles of the sample should be used to crush the mill

4.1.5 In order to measure correctly, the second use to wait for moisture meter cooling 50℃

4.2 Turn on/Off

4.2.1 In the off state, touch screen, start moisture meter, the instrument inside the self inspection instrument after the end of the end of the main interface

4.3 Operation

4.3.1 Calibration of weighing

In order to improve and ensure the accuracy of the weighing data, weight calibration should be carried out before the first weighing or the accuracy of the requirement.

How to calibrate

A. Clean the sample tray, the sample tray should place well, touch the weight calibration key in the main display.

B. Touch the calibration key and start the weight calibration.

C. Place the weights when the display show 50g Or 100g, then close the cover.

D. After calibration, remove the weight, take off weight. (if it does not

return to zero, then do calibration again)

4.3.2 Time set

- A. Touch the time key
- B. set the current date and time to touch the confirmation key, return to the clock interface, set the success

4.3.3 Timed drying

Dry time is the drying time to reach the preset drying time is over.

- A. In the main display, touch the timer and dry key
- B. When modify the drying temperature, touch the temperature of the display, set up the temperature in the display, set a good drying temperature, touch the confirmation key, return to the regular drying interface.
- C. When modify the drying time, touch the drying time of the display box, set the time of drying in the display, set a good drying time, touch the confirmation key, return to the regular drying interface
- D. Put over the tray, if the weight is not zero, touch zero key will be peeled in weight, weight is zero, put the samples 3-5 grams, weight stable, touch dry start button, the lamp light, began to dry, and enter the interface is dry.
- E. On the display, there will be change of temperature, sample weight, heating time
Touch REVIEW key, which Can view the circulating water loss rate, drying rate, moisture regain, wet weight rate. Touch STOP, stop to dry.
- F. When the drying time to achieve the set of drying time, moisture meter will stop drying, enter the drying time to view the interface, can show 9 kinds of water measuring parameters

- a. The weight of sample
- b. The dry weight
- c. heating time (min, sec)
- d. Humidity of dry
- e. End ways
- f. moisture loss rate= $(G-g)/G$
- g. drying rate= g/G
- h. Regain= $(G-g)/G$
- i. Wet weight ratio= G/g

4.3.4 Drying automatically

Automatic drying means that the weight of the sample is not decreased, and the drying is over.

4.3.5 Current record

The current record is the most recent sample drying parameter

- A. In the main interface, touch the current record key, enter the current record interface
- B. At the current record interface you can view the drying parameters to print, save or delete. If the instrument is not dry after the start, the touch screen shows no current record, return to the main interface.

4.3.6 Save record

Preservation record is the moisture meter to complete a dry test, press the Save button, the test results will be saved in the instrument can save up to six groups

- A. In the main interface, touch save record key, enter the record interface

B. B. In the save record interface, touch sample number keys. Can view the sample drying parameters, print or delete

5. Print setting

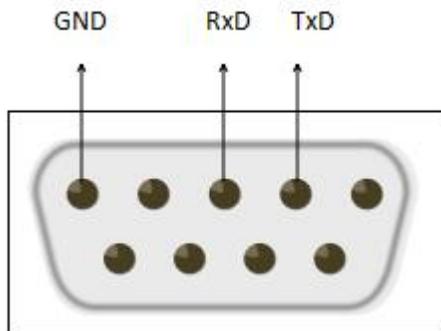
5.1 The moisture meter can be used to print the test data or the parameters of the sample to be tested through an external micro printer.

A. Select the samples that have been set or have been tested, and touch the "print" button to print the parameters and test data of the sample.

B. Print by RS232 interface

C. 9 pins: 5-ground 3-set out

D. There are 9 kinds of printing parameters



DB9 connector

Pin 2: TxD, send

Pin 3: RxD, receiving

Pin 5: GND, ground

Baud rate: 9600

Data bit: 7

Parity: N

Stop bit: 2

5.2 Read test data

To have stored test data, the user can call and view

Steps:

A. Select a set of parameters or have been tested and maintained by the sample (there is no number)

B. go back main page

C. Touch has saved records to view different test water parameters

5.3 Data interface

9600 baud rate

6. Test optimization

6.1 heating temperature

·Heating temperature controls of heating time. (for example, the temperature is too low to extend the drying time).

· If use a suitable heating temperature, the requirements can not be broken down will not change the chemical structure of the sample, generally set to 110 degrees C, except the sample and industry with special requirements

·The moisture content of some samples can be measured at different heating temperatures. In this case, try to adjust the heating temperature to compensate for the deviation of the measurement.

6.2 Sample preparation

Samples should be representative of the test, so as to obtain accurate and reproducible measurement results

When preparing the sample, make sure that the sample is placed on the sample plate evenly, avoid the accumulation and the quantity is too much.

6.3 Sample type

·Paste, containing fat soluble substances

Use glass fiber sucker to increase sample surface area, for example, butter. The water in these substances is distributed more evenly through the suction cups. Increasing the surface area of the sample will cause the water to evaporate more quickly and completely.

6.4 The liquid

The liquid will form a water drop on the tray, which will stop the fast drying. In this case, the liquid sample can be evenly distributed in a larger surface area, and the drying time can be shortened by using the glass fiber sucker.

6.5 The temperature sensitive material, easy to crust

Samples formed on the surface of the surface will completely block the moisture measurement. At this point, the use of glass fiber sucker, cover samples, and the use of a more moderate heat, can improve the repeatability of the sample

6.6 substances containing sugar

Sample with a large amount of sugar is easy to burn. Make sure that the samples are evenly distributed and thin, and select a moderate temperature.



The following substances may be in danger of fire, explosion, damage or injury.



For any material that has a safe hidden trouble, please analyze the possible risks.

In this case, the instrument should be specially assigned to take care

7. Maintenance

7.1 Often use the water meter, the water meter should be linked to reduce the heating time, so that moisture meter in a relatively stable state, if the water meter long not, should be off the power supply

7.2 Moisture meter should be kept clean, beware of dust and other matter into the water meter, and a shell often with mild detergent and soft cloth to wipe clean, do not use alcohol, gasoline and other strong solvent scrubbing, moisture meter is not on the corrosive gas environment.

7.3 According to the degree of use of water meter, should be periodically checked and calibrated

8. Faults and Solutions

Failure	Reason	Solutions
No light	No power or No connect with power	Check the adaptor and power
No weight	1. No install the pan 2. Internal data may be corrupted	1. Install the pan again. 2. Re-calibration
overload	1. Before turn on, there is object. 2. More than maximum load.	1. Remove the object 2. Remove the load 3. Re-calibration

	3. Internal calibration procedure damage	
Calibration when ultra light and overweight	1. Calibration weight is wrong 2. Before calibration, there is other object.	1. Take away the object, tare and calibration 2. Re-calibration
weighing unstable	1. Air flow 2. Working table is not stable	1. Air flow should be avoided as far as possible 2. Operation on a stable table
The weighing result is not correct	1. No tare before weighing 2. No calibration or calibration wrong	1. Touch TARE 2. Re-calibration
Touch one of the function keys does not respond	1. May be instantaneous dry 2. Power or adaptor is not right	1. Re switch machine once again, or re insert the power supply 2. Use the correct power supply or connect the power cable

9. Standard Attachments

1. Machine
2. Bracket
3. Power cord
4. Weighing plate
5. Calibration weights 50g
6. Tweezers
7. Operation manual

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