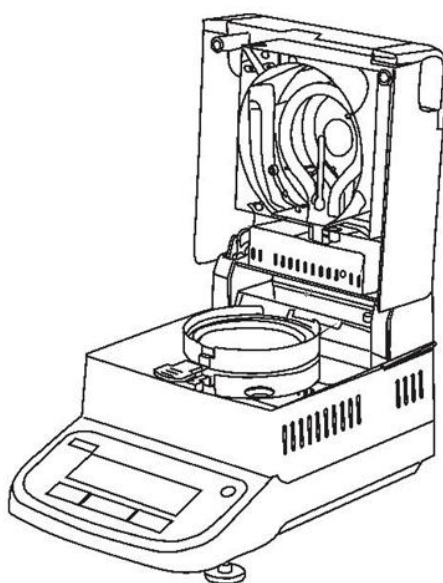


Halogen Moisture Analyzer

Operation Manual



Please read the instructions carefully before using the instrument.

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1、 Introduction

1.1 Precaution

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

- Make sure there is enough space around the moisture meter, at least 1 meter above the instrument.

Note: Moisture Analyzer works by heating!

- Do not place combustible materials around the moisture analyzer.
- Be careful when moving the sample during use. The sample and heating element will be very hot, which can easily cause burns.
- For samples with safety concerns, carefully consider whether they are suitable for heating testing.
- Fire/Explosion: Samples containing solvents, flammable or explosive, may generate flammable and explosive gases or vapors during heating. If you want to measure such samples, please test in a dry and low temperature environment to avoid fire or explosion.
- Toxic/Flammable: Samples with toxic or corrosive components should only be tested in a fume hood.
- Corrosion: Samples containing corrosive solvents will release corrosive gases during heating. It is recommended to take a small sample for testing.

1.2 Environmental requirements

The moisture meter should be used in conventional laboratories or industrial measurement rooms, which can improve the stability of weighing and the accuracy of test results.

- A. The ambient temperature should be between 5°C and 35°C, and the humidity should be controlled below 85%;
- b. It is recommended to place moisture analyzer on a workbench that is not affected by vibration;

- c. The workbench should be kept away from doors and windows to reduce the influence of airflow and sunlight on the moisture analyzer;
- d. The instrument should be away from objects and equipment with magnetic or magnetic fields to avoid the moisture analyzer be influenced;
- e. Avoid connecting with large machines or equipment with interference to ensure the instrument not suffering interference from other equipment;
- f. Dry environment prone to generate static electricity, please take appropriate measures to avoid the impact of static electricity on the instrument.

Friendly Reminder

- Please perform the first calibration after 30 minutes of warm-up;
- A test can be carried out as a warm-up after the calibration;
- The time interval between switching on and off is more than 5 seconds;
- If the continuous test is carried out, please perform a new test after the temperature drops below 40 ℃.
- When covering the heater, do not leave the weight on the weighing pan to avoid crushing the halogen lamp;
- Be sure to cut off the power when leaving the moisture analyzer;
- Never leave the moisture analyzer unattended.

2、 Technical Specifications

| | |
|---------------------------|------------------------------|
| Model | MD-100A |
| Max. Capacity | 120g |
| Weighing Accuracy | 0.0001g |
| Readability | 0.001% |
| Heating Source | Ring-shaped halogen lamp |
| Heating Temperature Range | 40℃~200℃ |
| Weight Calibration | 100g |
| Pan Size | Φ90mm |
| Sensor | Electromagnetic force sensor |

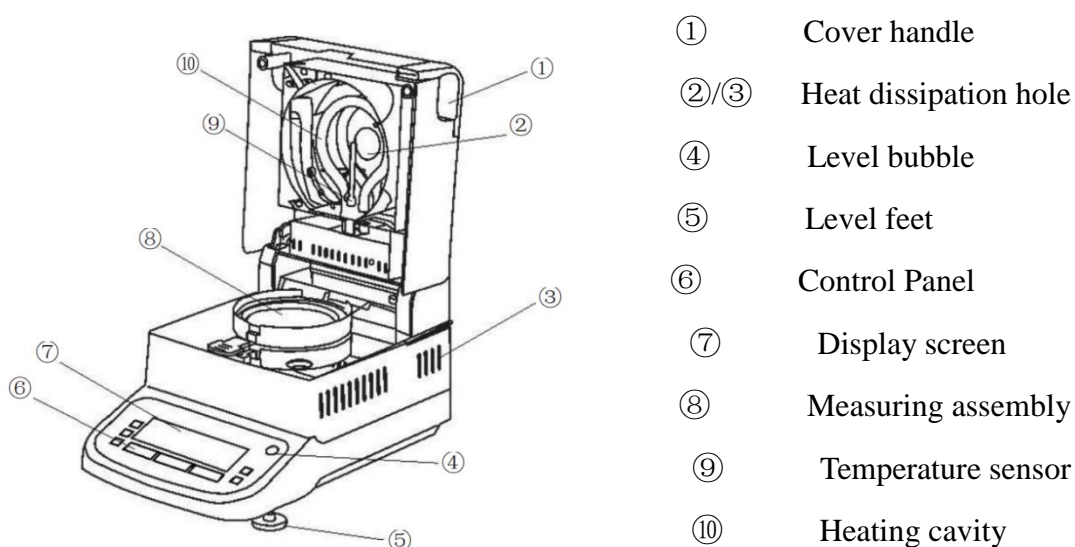
| | |
|--------------------|-----------------------------------------------|
| Display | LCD |
| Heating Procedure | Standard heating, Rapid heating, Step heating |
| Shutdown Mode | Timing, automatic, manual |
| Heating Time Range | 1~99 mins |
| Product Size | 310*205*200 mm |

3、Installation

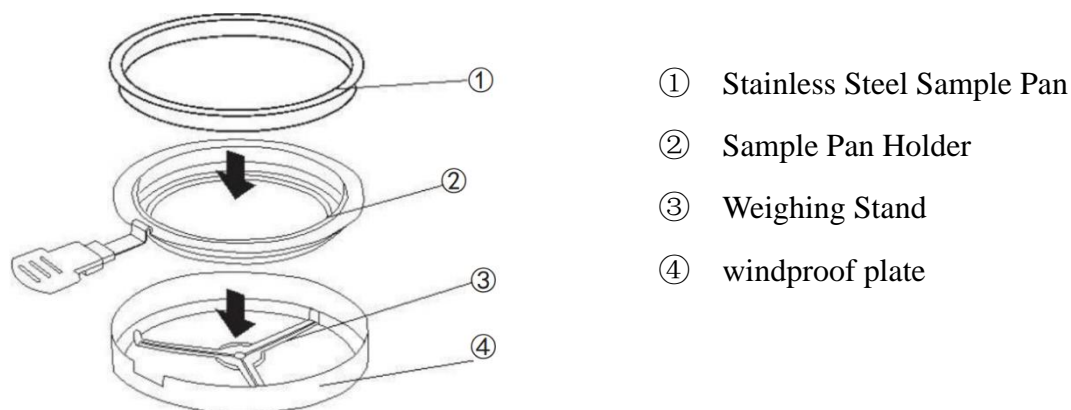
3.1 Standard configuration

| Standard configuration | QTN | Remarks |
|------------------------------------|--------|-----------------|
| Moisture analyzer Host | 1 set | |
| windproof plate | 1 pcs | Stainless steel |
| Weighing Stand | 1 pcs | Stainless steel |
| Sample Pan Holder | 1 pcs | Stainless steel |
| Stainless Steel Sample Pan | 2 pcs | |
| 100g standard weight | 1 pcs | F1 class |
| User Manual | 1 copy | |
| Packing list / product certificate | 1 copy | |
| Warranty card | 1 copy | |

3.2 Product Diagram



3.3 Measuring assembly



3.4 Installing Components

3.4.1 Placing the windproof plate: The small opening of the windproof plate faces the front, and there are two screws at the rear to fix the windproof plate.

3.4.2 Place weighing stand at the central hole of the moisture analyzer. Notice if the weighing bracket touches all sides.

3.4.3 Place the sample pan holder : the end with the handle is forward. Pay attention to check whether sample pan holder is in contact with weighing stand after placing.

3.4.4 Placing stainless steel sample pan: Place stainless steel sample pan on the weighing stand smoothly.

3.5 Connecting to the power supply

Insert one end of the power cord into the power input slot on the back of the moisture analyzer, and then connect the other end to the power output socket.

4、 Operation

4.1 Adjustment level

The moisture meter has a leveling bubble and two leveling feet. In order to avoid inaccurate weighing results due to the inclination of the placement position during the weighing process, the leveling feet can be adjusted until the leveling bubble is in the center.

Note: Every time you change the position of the instrument, you need to adjust the level!

4.2 Display



Max: Maximum weighing;

d: Minimum readable value for weighing;

ok: Weighing stability indicator;

g: Unit gram;

%DC: Solid content%;

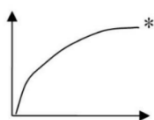
%MC: Moisture content%;

Program 01: Current program name (test method);

888°C : Current temperature (°C);

88:88 : The set timing time;
Total drying time;

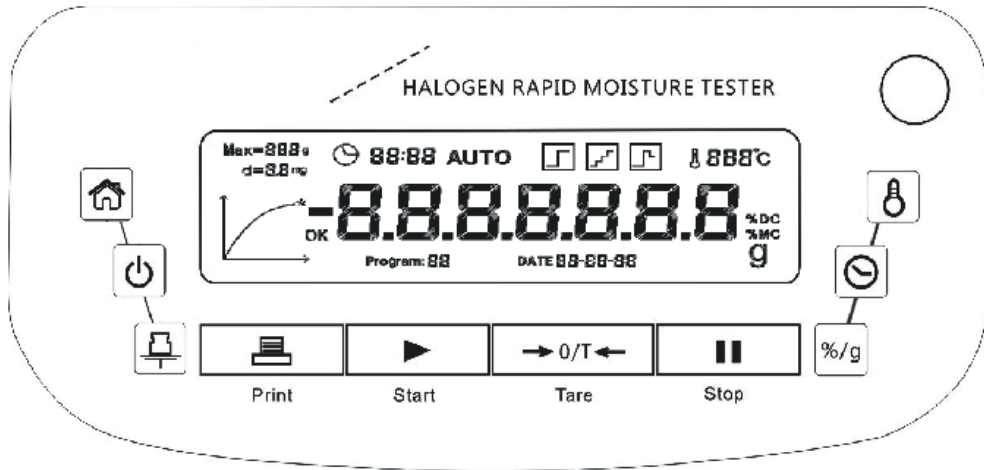
AUTO : Measurement mode;





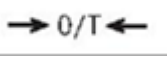







Humidity display five segment trend;

“ * ” shows Drying program is over.

4.3 Control Panel





| Key | Name | Instruction |
|-------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------|
|  | Menu | Enter the settings menu; Save the setting value; |
|  | Unit Conversion | Convert between % and g |
|  | Print | Print output |
|  | Start | Start testing; Decrease set value; Confirm; |
|  | Tare | Clear/Tare Increase set Value |
|  | Stop | Stop testing Shutdown |
|  | Time | Set heating time |
|  | Temperature | Set heating temperature |
|  | Calibration key | Used to calibrate weighing accuracy |
|  | On/off | Used to turn on and off |

5、 Function Introduction



5.1 Calibration

Calibration is required in the following cases:

- Using the instrument for the first time.
 - Move moisture analyzer
- a、 Open the heating cavity;
 - b、 Press “Tare” key, screen will display 0.0000g ;
 - c、 Press  key, the screen will display "CAL 100", put the 100g weight on stainless steel sample pan;
 - D、 Press  key again, the screen will display "CAL...", wait for 5-8s, the screen will display "100.0000g", and the calibration is over. The allowable error is $\pm 0.0003g$.

If the screen displays “CAL NO”, it means the calibration failed, please re-calibrate.

5.2 Temperature Setting


Press  to display the current set temperature value. Press "Tare" key once, the temperature will decrease by 1°C ; press the "Start" key once, the temperature will increase by 1°C. After setting, press , save and return to weighing state. The temperature setting range is from 40° C to 200° C.

5.3 Measurement Mode Setting

5.3.1 Automatic Mode Setting (Factory Default Automatic Mode)

In the weighing state, press the menu key, the instrument will display "AUTO", which means automatic mode. Press the Start key, the instrument will display "S---END", wait for 2 seconds, the instrument will store and update the data and return to the weighing state. "AUTO" is displayed on the right side of the clock, indicating that the setting is complete. If you need to set the weight loss rate, please refer to ——5.5 Weight loss rate setting.

5.3.2 Timing mode setting

In the weighing state, press  key, the instrument will display "AUTO"; press Tare key, it will display "CLOC", which represents the timing mode. Press Start key to confirm, and the right side of the clock will no longer display "AUTO", indicating that the setting is complete. The time on the screen at this time represents the measurement time. If you need to set the time, please refer to 5.4 Time Setting.



Situation statement:

Timing mode: The instrument automatically completes the measurement and displays the moisture value according to the set time.

Automatic mode: The instrument automatically completes the measurement and displays the moisture value according to the weight loss rate we set.


Remarks: There is no "AUTO" mark on the top of the screen in timing mode, and the "AUTO" mark is displayed in automatic mode.

5.4 Time setting

In the weighing state, press  key, the displayed value is the current setting time, and the unit is minute. Press Tare key to decrease, press Start key to increase, and press  key to confirm the time setting after the setting is completed.

Note: Time setting can only be used in timing mode.

5.5 Weight loss rate setting

In the weighing state, press  key, the instrument will display "AUTO"; press Tare key to switch until "A1-A5" is displayed, press Start key to confirm after selection, and the screen clock will display the current weight loss rate.

Note: A1 20 stands for 20s; A2 50 stands for 50s; A3 90 stands for 90s; A4 120 stands for 120s. For example: the clock displays "00:30", representing the 30s weightless rate.

Remarks: The default weight loss rate of the moisture analyzer is 50s. If the

measurement time is long, the weight loss rate can be adjusted to 20s without affecting the test results.


System Parameter Table

| Setting Item | Name | Significance |
|--------------|---------------------------------|------------------------------------------------------------------------------------------------------|
| AUTO | Automatic Mode | Automatically complete the measurement and display the result according to the set weight loss rate. |
| CLOC | Timing Mode | Automatically complete the measurement and display the result according to the set time. |
| A1 20 | 20 seconds | The weightlessness rate is 20 seconds. |
| A2 50 | 50 seconds | The weightlessness rate is 50 seconds. |
| A3 90 | 90 seconds | The weightlessness rate is 90 seconds. |
| A4 120 | 120 seconds | The weightlessness rate is 120 seconds. |
| USER | Customer Use | User mode |
| FACTORY | For internal use in the factory | Users do not choose |
| ESC | EXIT | Exit menu. |

6、 Measurement Steps

Test steps: (It needs to warm up for 30 minutes after starting up)

- A. Calibration;
- B. Set the heating temperature;
- C. Prepare test samples:
 - a. Put the stainless steel sample pan on the weighing stand;
 - b. Press Tare key to remove the weight of the stainless steel sample pan;
 - c. Pour the sample into the stainless steel sample pan and spread it evenly;
 - d. The screen will display the weight of the sample;
- D. Cover the heating cavity;
- E. Press Start key to start the measurement.
- F. The instrument sounds three beeps of "Dididi", indicating that the test is over. What is displayed on the screen is the moisture content.


G. The display shows the current moisture value MC%, press  key to display the current measurement result:


%MC: represents the current moisture content;


%DC: represents the current solid content;

g : represents the weight after drying;

Press Tare key to return to weighing mode.

H. Press  key to send the current measurement result to the printer or other peripherals. The printer is an optional accessory.

Note: Press the  key during the test to terminate the test in advance.

Press  key to shut down after use. If it is not used for a long time, please unplug the power supply.

7、 Troubleshooting

| Fault Phenomenon | Cause of Failure | Solution |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Can not boot | Not connected to power; The fuse is damaged; | Check the power connection and voltage; Replace the fuse; |
| The screen displays "HHHHHH" | Overload - the weight of the sample exceeds the maximum weighing capacity of the weighing unit; | Reduce the weight of the sample |
| The screen displays "LLLLLL" | The weighing stand is not installed; | Insert weighing stand |
| Unstable weighing readings | Weighing environment is not good; Preheating time is not enough; The weighing unit touches the windproof disk and other peripheral equipment; | Ensuring environmental conditions; Preheat for 30 minutes; Make sure that the sample pan, weighing stand and peripheral equipment such as the windproof pan are not in contact; |
| NO CAL - cannot calibrate | There is a problem with the calibration weights; The weight was not reset to zero before calibration; Unstable weighing readings; | Please press the Tare key to reset the weight before calibration; Calibrate with the configured F1-level 100-gram standard weight; Make sure that the weighing reading is stable before calibrating; |
| The instrument does not heat up after starting | Halogen lamp or heating limit switch damaged; | Please contact the manufacturer; |

| | | |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Low repeatability</p> | <p>The position of the instrument is not stable; There is vibration or airflow in the surrounding environment; The sample is not evenly spread on the stainless steel sample pan; The weight of the samples did not maintain a similar value; In timing mode, the drying time is too short; The sample was not sufficiently dried (e.g. conjunctiva-prone substances); If the drying temperature is too high, the sample is oxidized or decomposed; Sample particles are uneven or too large; The sample boils, and the splashed droplets change the sample weight;</p> | <p>Adjust the feet to center the horizontal bubble; Please provide a good test environment; Spread the sample evenly on the stainless steel sample pan; Make sure the samples are of similar weight; Extend the drying time or change the timer mode to automatic mode; Dry the sample with glass fiber filter paper; reduce the drying temperature; Select sample particles with uniform size; reduce the drying temperature;</p> |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|