

PAPER MOISTURE METER

MC-7828PP

This Moisture Meter is small in size, light in weight, easy to carry. Although complex and advanced, it is convenient to use and operate. Its ruggedness will allow many years of use if proper operating techniques are followed. Please read the following instructions carefully and always keep this manual within easy reach.

1. FEATURES

- * It is mainly used for moisture measurement of paper products.
- * This instrument uses contact measurement. The moisture of the measured paper products is measured by measuring the electrical conductivity between two electrodes.
- * This instrument has a variety of measurement codes for users to choose from different paper products. By selecting different codes, the measurement results are more accurate.
- * Digital display gives exact reading with no guessing or errors while a colour coded light (LED) indicates the moisture condition of the material. This combined presentation of moisture measurement helps the user to map the extent of problems and monitor changes in condition precisely and reliably.
- * Alarm values can be set by users.
- * Automatic power off to conserve power.
- * Can communicate with PC computer for statistics and printing by the optional cable and software for RS232C interface.
- * Can store 240 groups of measurements.

2. SPECIFICATIONS

Display: 4 digits, 10 mm LCD With colour coded LED indication

Green LED represents a safe, air-dry state.
 Yellow LED represents a borderline State.
 Red LED represents a damp state.
 Measurement Range: 0~50% (code=Cd08)
 0~18% (code=Cd10)
 0~100% (code=Cd11)
 0~40% (code=Cd12)
 Accuracy: $\pm (0.5\%n+1)$
 Resolution: 0.1
 PC interface: USB interface
 The statistics available are:
 Last value / Mean value / Max. value /
 Min. value / Number of Readings
 Memory: 240 groups
 Power supply:
 4x1.5 AA size (UM-4) battery
 Operating conditions:
 Temperature : 0-50°C
 Humidity : below 90% RH
 Dimensions:
 Main Unit: 150x65x30mm
 Sensor: 265x44x44mm
 Length of electrode: 77mm
 Cross section size of electrode: 14x1mm
 Gap between 2 electrodes: 4mm
 Weight: 295g (not including batteries)
 Standard accessories included :
 Main unit

Sensor
 Carrying case
 Operation manual
 Optional accessory
 USB cable and software
 Bluetooth adapter and software
3. OVERALL & DISPLAY DESCRIPTIONS



Fig.1 Overall Descriptions

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- 3-1 Sensor
- 3-2 Display
- 3-3 USB cable interface
- 3-4 Color coded LED
- 3-5 Measure key
- 3-6 Read key
- 3-7 Power key
- 3-8 Backlit key
- 3-9 Select key
- 3-10 Delete key
- 3-11 Plus key
- 3-12 Zero/Minus key
- 3-13 Battery cover
- 3-14 External power

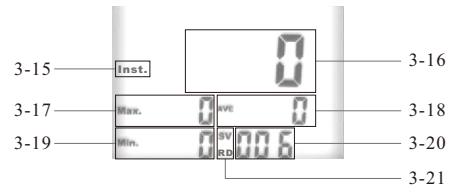


Fig.2 Display Descriptions

- 3-15 Data storage indicator
- 3-16 Measurement readings
- 3-17 The maximum value of statistical data
- 3-18 The mean value of statistical data
- 3-19 The minimum value of statistical data
- 3-20 The amount of statistical data in the statistical measurement mode
 The amount of data stored in the storage measurement mode
 The ordinal number of current data in the reading mode
- 3-21 Mode indicator
 ('SV' represents the measurement mode,
 'RD' represents the reading mode)

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4. ZERO CALIBRATION

4.1 Correct zero calibration is an important step to ensure accurate measurement. It can eliminate the additional error caused by the changes in the parameters such as the temperature and humidity of the environment.

Hang the two measuring electrodes of the instrument in the air. The readings at this time on the display should be 0, otherwise the moisture meter need to be calibrated. The method of zero calibration is as follows:

Ensure the two measuring electrodes suspended, press Zero/Minus key in the measurement mode, 0 is shown on the display, the zero calibration is complete. Every time the moisture meter is powered on, it will be automatically zero calibrated. Please ensure that two measuring electrodes are suspended when it is powered on.

5. MEASUREMENT PROCEDURES

- 5.1 Press the Power key to power on the meter.
- 5.2 Selection of material code
 Before measuring, check the material code first.
 Press the Select key, and a code will appear on the display: 'cdxx'.

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Press the Plus key or the Zero/Minus key to change the code.

For the material code and its corresponding material name, see the attached table on page 9.

5.3 Selection of statistical measurement mode and storage measurement mode

The instrument has two kinds of measurement modes, statistical measurement mode and storage measurement mode.

In the statistical measurement mode, the 'SV' indicator is on the display of instrument. In this mode, the maximum value, minimum value, average value, and statistical number of multiple measured data can be calculated and displayed.

In the storage measurement mode, the 'SV' and the 'Inst.' indicator are on the display of instrument. In this mode, data storage can be done, and the measurement reading can be saved to the instrument. It can be used for immediate viewing (see 5.5 Data reading mode for detail), and is also used for analyzing and processing with software. See the 5.7 Computer connection for detail.

Note: The automatic statistics of the data will be also carried out in the storage measurement

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mode, and the maximum, minimum and average value of the measured data are calculated.

Press and hold the Measure key for about 5 seconds, and the conversion between the storage measurement mode and the statistical measurement mode can be realized.

5.4 The statistics and storage of data

In the statistical measurement mode, when the measuring electrodes touch the object with moisture more than 0, the measurement readings will be generated on the display. After multiple measurements, statistical data such as the maximum value, minimum value, mean value, the amount of statistic data of current measurement mode will be displayed.

In the storage measurement mode, completely inserted the measuring electrode into the material to be measured. Press the Measure key, the moisture of the measured material and the amount of the stored data will be displayed. Every time the Measure key is pressed, the amount of saved data increases by 1. After many times of measurements, the maximum value, minimum value and average value of

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current measurement mode will be displayed.

Note: After the mode transformation, the statistical data in the previous measurement mode will be emptied, and the statistics will be recounted.

5.5 Data reading mode

In the reading mode, we can see the data that has been saved to the instrument.

Press the Read key, the 'RD' symbol, the reading and ordinal number of the current browsing data are displayed, the instrument enters the reading mode. Then press Plus key or Zero/Minus key to browse the data stored in the instrument.

To quit reading mode and return to the measurement mode, press the Measure key.

5.6 Deleting data

The instrument can store up to 240 groups of measured data.

When more than 240 groups of data are stored, the earliest measured values will be automatically deleted, then the last measured values are stored automatically, and so on.

There are two ways to delete data: single deletion and all deletion.

In the data read mode, press the Delete key,

and the current reading will be deleted.

In either the statistical measurement mode or the storage measurement mode, press and hold the Delete key for about 5 seconds, all the measurement data stored in the instrument will be deleted.

Note: In the statistical measurement mode, press the Delete key, the statistical function will be stopped.

5.7 Computer connection

Using optional USB data cable or Bluetooth adapter, the gauge can communicate with PC to realize data collection, processing, analysis and printing. The detailed method is shown in the demo file in the software directory.

6. AUTOMATIC POWER OFF

This instrument has two ways to power off, that is, manual power off and automatic power off.

6.1 At any time, press the power key for about 1 seconds. Release the key when the 'OFF' appears on the display, the gauge is powered off.

6.2 On the other hand, in storage measurement mode, if the keys are not pressed in 2 minutes, the gauge will be turned off automatically to save electricity.

7. ALARM LIMITS

7.1 There is a coded coloured LED indicating the status of moisture. It is controlled by 2 alarm limits. The factory settings are as follow.

AL1=13 and AL2=18

If the reading < AL1, the green LED is on.

If the reading > AL2, the red LED is on.

If the reading lies between AL1 and AL2, the yellow LED is on.

Users can change the alarm limits when as per their intention.

7.2 How to set the alarm limits

7.2.1 Press and hold the Power key till 'AL1' or 'AL2' appears on the Display. It is about 5 or 7 seconds from starting depressing Power key.

7.2.2 Such value can be changed to your intended value by pressing the Plus key or Zero/Minus key. Press the Select key to return to the state of measurement.

7.2.3 If the second limit AL2 is less than the first limit AL1, the setting is invalid and the factory settings for AL1 and AL2 are restored to AL1=13 and AL2=18 automatically.

8. CONSIDERATIONS


8.1 The insertion depth of the measuring

electrode will directly affect the result of the measurement. In general, the deeper the depth is, the greater the value of moisture measured. Therefore, please pay attention to the consistency of the depth of insertion.

8.2 This instrument is of very high input resistance. Every parts have good insulation. Please keep it in a dry, dustproof place.

8.3 The measurement result may be different if taking the measurement from different directions of the surface. That is because water in the material is not distributed evenly.

9. BATTERY REPLACEMENT

9.1 When it is necessary to replace the battery, the battery symbol '  ' will appear on the Display.

9.2 Slide the Battery Cover away from the instrument and remove the batteries.

9.3 Install the batteries (4x1.5vAAA/UM-4) correctly into the case.

9.4 If the instrument is not to be used for any extended period, remove batteries.

Appendix: Code table for a Pin mode

Code	Materials
Cd00	For factory commissioning only.
Cd01	
Cd02	
Cd03	
Cd04	
Cd05	
Cd06	
Cd07	
Cd08	Cardboard (0~50%)
Cd09	For factory commissioning only.
Cd10	Paper (0~18%)
Cd11	Paper (Base on 0~100%)
Cd12	Shredded Paper (0~40%)
Cd13	For factory commissioning only.