MOISTURE METER

(Pin & Search type)

AM-128PS

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 techniqu-es are followed. Please read the following instructions carefully and always keep this manual within easy reach.

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1. FEATURES

* Be a powerful and versatile instrument for measuring and diagnosing dampness in buildings and building materials. This product enables building surveyors and other practitioners to meas-ure moisture levels of building elements such as walls, floors and other building materials simply by switching between the two different modes of operation. In this way, a detailed understanding of the moisture condition of the property can be obtained.
* 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.
* Used the exclusive Micro-computer LSI circuit and crystal time base to offer high accuracy measurement.
* Wide measuring range and high resolution.
* Automatic power off to conserve power.
* Can communicate with PC computer for statistics and printing by the optional cable and software for USB interface.

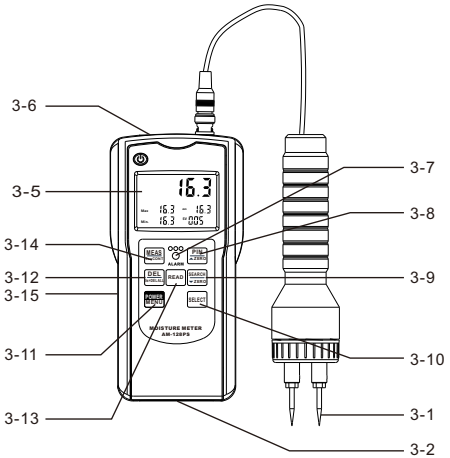
* Can store 240groups of measurement results with statistical functions.

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.
Measuring range:
0~80%(when code=cd01 in Pin mode)
0~70%(when code=cd10 in Search mode)
Measuring code:
10 codes for Pin mode
20 codes for Search mode
Accuracy: ±(0.5%n+1)
PC interface: USB interface
Power supply: 4x1.5 AAA size (UM-4) battery
Power off : 2 modes
Manual off at any time
Auto power off after 5 minutes from last key operation
Operating conditions:
Temperature : 0-50°C (32~122°F)
Humidity : < 90% RH
Dimensions:
Main unit: 140x70x31mm 5.5x2.8x1.2inch
Sensor: 192x44x44mm
Length of pin: 25mm
Diameter of pin: 2.3mm
Distance between 2 pins:18mm
Contact area of search sensor: 40x16mm
Weight: 175g (not including batteries) 6.17oz
Standard accessories included :
Carrying case 1 pc.
Operation manual 1 pc.
Optional accessory
Cable and software for USB

3. FRONT PANEL DESCRIPTIONS



3-1 Pin probe
3-2 Search probe
3-3 Display
3-4 Data cable interface
3-5 Color coded LED
3-6 Plus/Pin Zero key
3-7 Minus/Search Zero key
3-8 Select key
3-9 Power/Menu key
3-10 Delete key
3-11 Read key
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3-13 Battery compartment/ Cover

4. MEASURING PROCEDURE

4.1 Depress the 'power/Menu key' and release to power on the meter.

4.2 To check if the material code is right by pressing and releasing the 'Select key'. Such code can be changed by the 'Plus / Pin Zero key' or 'Minus / Search Zero key' when the 'cdxx' is on the display. Here 'cd' is the abbreviation for'code'and 'xx' is the material no. If keep depressing the 'Plus / Pin Zero' or 'Minus /Search Zero key', the material code will step into next code about every second and releasing it till the material code is right.

4.2.1 Code selection for the Pin mode

The material code for the Pin-type mode is listed in the table on page 7. Please select the standard code 'cd00' if the material to be measured is not listed in the table or to ascertain its material code by the standard oven-drying method.

4.2.1 Code selection for the search mode

The standard material code for the search mode is 'cd10' which is suitable for measuring the material whose density is like that of pine, fir, oak etc. The user can carry out the accurate measurement by selecting one material code between 'cd01' and 'cd20'. The greater the density of the material to be measured, the larger the material code to be selected. For measuring moisture in concrete wall, the user can select the code around 'cd18'. Please refer the Appendix on page 9 when selecting the code. This code is only for reference due to many uncertain factors for materials to be measured.

4.2.2 Factors affect the choice of material code

There are many factors to affect the material code, for instance, different places, different soil even if in a same place will lead to different code for a same material. The better way to ascertain the material code is based on standard tests by oven-drying of commercial samples of the material to be measured. The code by which the measuring results are closest to those of oven-drying method is the right code. Write down the code for such material for later uses.

4.3 Moisture measurement

Check which operational mode the instrument is in by looking at the symbol '((•))'in the display. It is in a Search mode if the symbol '((•))' shows on the display. And it is in a Pin mode if without this symbol on the LCD.

4.3.1 Measurements if in a Pin mode

Push pins firmly into the surface of the material about 6mm deep at the required point.

4.3.2 Measurements if in a Search mode

Place the search probe against the surface of the material such as wall, floor etc. at the point of measurement.

4.3.3 Read the moisture level value from the display and note the moisture condition of the material from the colour coded LED.

4.4 Zero calibration

The zero feature enable the user to compensate for the effect of changes in both temperature and humidity. Zero calibration should be carried out independently in different modes.

4.4.1 Zero calibration in a pin mode

Press the Power key to switch the meter on. Be sure it is in a pin mode. If not, change it to the pin mode (See 4.5). Let the pins of the meter touch nothing except air. And press 'Minus / Search Zero key to make the meter display '0' if other digits on the display. The meter is now zeroed.

4.4.2 Zero calibration in a search mode

Be sure the meter is in a pin mode. If not, change it to the search mode (See 4.5). Keep the search probe of the meter away from the surface of any material at least 15cm. And then press Minus / Search Zero key' to make the meter display '0' if other digits on the display. The meter is now zeroed.

4.5 How to change the measurement mode?

Press the 'Power / Menu key' and not release it until the letters `CH` appear on the display. The mode has changed to the other mode after releasing the 'Power / Menu key'. Which mode is in now, see 4.3.

5. STATISTICS

The gauge calculates and displays a statistical analysis of readings as they are taken.The statistics available are:

* Last value
* Mean value marked by Ave
* Highest Reading marked by Max.
* Lowest Reading marked by Min.
* Number of Readings taken

When stored data exceed 99 groups, the latest value will be memorized, while the earliest one will

be deleted, and so on.

6. STORING AND RECALLING READINGS

6.1 Readings taken are automatically saved to the memory of the gauge. The memorized data can be browsed by pressing and releasing the 'Read key' to enter into the browsing state marked by "RD" on the display.

6.2 In the browsing state, all the readings memorized can be recalled on the display by depressing the 'Plus / Pin Zero key' or the 'Minus / Search key'.

6.3 To delete singly a memorized value in the memory, just locate the reading to be deleted by the key 'Plus / Pin Zero key' or 'Minus / Search Zero key' , then press and release the 'Delete key'. If there is an 'Err0' on the display, it indicates there is no reading to delete any more.

6.4 To quit to the measurement state, just depress the 'Zero key'.

7. DELETING READINGS

7.1 To delete a reading on the display, just press the 'Delete key' no mater in the measurement state marked 'SV' or in the browsing state marked by 'RD'. Go into the browsing state by 'RD'.Go into the browsing state by pressing the 'Read key' .

7.2 To delete all the readings in the memory, just depress the 'Delete key' in the measurement state marked by 'SV' on the display for about 5 seconds till the number of readings memorized becomes 0.

8. ALARM LIMITS

8.1 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.

8.2 How to set the alarm limits

8.2.1 Depress 'Select key' and not release it till 'AL1' 'AL2 ' appears on the Display. It is about 3 seconds from starting depressing the'Select key'.

8.2.2 Such value can be changed to your intended Value by depressing the 'Plus / Pin Zero key' or 'Minus / Search Zero key' . Depress the 'Select key' to return to the state of measurement. 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.

9. CONSIDERATIONS

9.1 Please keep it in a dry, dustproof place.

9.2 The measurement result may be different if taking the measurement from different directions of the surface. That is because water in the mater-ial is not distributed evenly.

10. BATTERY REPLACEMENT

10.1 When it is necessary to replace the battery, the battery symbol '⊟+' will appear on the display.

10.2 Slide the Battery Cover (3-4) away from the instrument and remove the batteries.

10.3 Install the batteries (4x1.5vAAA/UM-4)

correctly into the case.

10.4 If the instrument is not used for a extended period, remove batteries.

11. TRANSFERRING READINGS TO A COMPUTER

11.1 Install the software on your PC, plea-se always click 'the continue' button in the install-ing process.

11.2 Connect your gauge to your PC using the optional cable.

11.3 Switch on your gauge and ensure the Reading Screen is displayed.

11.4 Start the software and follow the instructions included with the software Demo.EXE.

12. APPENDIX 1: CODE TABLE FOR A PIN MODE

Code	Materials
Cd00	Abies grandis, Acer macrophyllum, Maple, Acer saccharum, Pine(scots), yellow Pine, Dalbergia latifolia, Dipterocarpus zeylanicus, Eucalyptus microcorys, Fraxinus excelsior, Cupressus spp, Pinus contorta, Pterygota bequaertii, Quercus robur, Pinus sylvestris, Balsa, Boxwood (maracaibo), red Gum(American), Gum spotted, Gurjun, Birch, Cypress (African) Karri, Oak(European), Oak(Japanese), black Poplar, Redwood(Baltic European), Rosewood (Indian), Pine (lodgepole), Tallowwood, Walnut (American), Kapur
Cd01	Araucaria bidwilli, Eucalyptus crebra, Eucalyptus saligna, Flindersia brayleyana, Fraxinus Americana, Intsia bijuga, Podocarpus dacrydioides, Sequoia sempervirens, Pinus pinaster, Gum(southern), Mahogany (west Indian), Douglas fir, Maple (queensland), red (light or dark) Meranti, white Meranti, Redwood(Californian), Walnut (new guinea), white Pine (new Zealand), Araucaria angustifolia

Code	Materials
Cd02	Distemonanthus benthamianus, Jarrah, Endiandra palmerstonii, Erythrophleum spp, Abies alba, Fagus sylvatica, Grevillea robusta, Juglans regia, Larix deciduas, Larix occidentalis, Podocarpus spicatus, Picea abies, Pinus caribaea, Pinus nigra, Pinus palustris, Pinus ponderosa, Pinus radiata, Taxus baccata, Thuja plicata, Tsuga heterophylla, red Cedar (western), Chestnut, Greenheart, Hemlock (western), Larch (European), Larch (Japanese), Queensland walnut, red Seraya, Spruce, Silky oak(African), Silky oak(Australian),Pine(Corsican),Pine,radiata, Walnut (European), Walnut (queensland), Whitewood, Yew, Pine (ponderosa), Stringybark, Oak (tasmanese)
Cd03	Khaya senegalensis, Podocarpus totara, Quercus cerris, Ulmus American, Ulmus procera, Ulmus thomasii, Afzelia, Kauri(new Zealand), Lime, Elm(English), white Elm, Matai, Oak(Turkey), Pyinkado
Cd04	Acer pseudoplatanus, Carya glabra, Sycamore, Cassipourea elliotii, Dipterocarpus (keruing), Teak, Cordia alliodore, Larix occidentalis, Pterocarpus soyauxii, Hickory, Padauk (African)
Cd05	Afrormosia elata, Diospyros virginiana, Gonystylus macrophyllum, Pterocarpus indicus, Afrormosia, Amboyna, Basswood, Coachwood, Persimmon
Cd06	Calophyllum brasil iense, Guarea cedrata, white Guarea
Cd07	Abies procera, Agathis robusta, Betula pendula, Croton megalocarpus, Prunus avium, Agba, Birch(European), Cedar (west Indian), black Guarea, Kauri (queensland),Walnut (African), Cherry (european), Utile
Cd08	Chipboard, Paper
Cd09	Building, Wall, Concrete

13. APPENDIX 2:Density-Code table (only for reference)

Density Km/m³	Code	Material (Only for reference)
200	1	
220	2	
240	3	Foam Soft wood
320	4	Felt
400	5	Peat Charcoal
440	6	
480	7	Coke
520	8	White lime
560	9	
600	10	Veneer Timber, Chipboard
800	11	Leather, Slag, Kerosene, Alcohol Polyethylene
1000	12	Soft coal, Bamboo, Paraffin ABS
1200	13	Clunch,Organic glass Asphaltum, lime
1400	14	Bakelite, fiberboard Rubber
1600	15	Stone, Sand (dry) Clayey brick
1800	16	Asbestine board Vitriol（87%）
2000	17	Sand (wet) Bricklaying, Firebrick
2200	18	Quartz glass Concrete,Asbestos, plaster
2500	19	China, Glass
3000	20	Magnetite, Granite, Marble

Specifications to change without notice
NOTICE: WE ARE NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS